



## Sequence Listing

<110> Innogenetics N.V.

<120> Purified hepatitis C virus envelope proteins for diagnostic and therapeutic use.

<130> 2551-69

<140> 09/995,860

<160> 122

<170> PatentIn 3.1

<210> 1

<211> 21

<212> DNA

<213> Hepatitis C virus

<400> 1

ggcatgcaag cttaattaat t

21

<210> 2

<211> 68

<212> DNA

<213> Hepatitis C virus

<400> 2

ccggggaggc ctgcacgtga tcgagggcag acaccatcac caccatcact aatagttaat

60

taactgca

68

<210> 3

<211> 642

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

<222> 1..639

<220>

<221> mat\_peptide

<222> 1..636

<400> 3

atg ccc ggt tgc tct ttc tct atc ttc ctc ttg gct tta ctg tcc tgt  
Met Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys  
1 5 10 15

48

ctg acc att cca gct tcc gct tat gag gtg cgc aac gtg tcc ggg atg  
Leu Thr Ile Pro Ala Ser Ala Tyr Glu Val Arg Asn Val Ser Gly Met  
20 25 30

96

tac cat gtc acg aac gac tgc tcc aac tca agc att gtg tat gag gca 144  
 Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala  
           35                          40                          45

gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc gtt cgg gag 192  
 Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys Val Arg Glu  
           50                          55                          60

aac aac tct tcc cgc tgc tgg gta gcg ctc acc ccc acg ctc gca gct 240  
 Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr Leu Ala Ala  
           65                          70                          75                          80

agg aac gcc agc gtc ccc acc acg aca ata cga cgc cac gtc gat ttg 288  
 Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His Val Asp Leu  
                           85                          90                          95

ctc gtt ggg gcg gct gct ctc tgt tcc gct atg tac gtg ggg gat ctc 336  
 Leu Val Gly Ala Ala Ala Leu Cys Ser Ala Met Tyr Val Gly Asp Leu  
                           100                          105                          110

tgc gga tct gtc ttc ctc gtc tcc cag ctg ttc acc atc tcg cct cgc 384  
 Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Ile Ser Pro Arg  
           115                          120                          125

cgg cat gag acg gtg cag gac tgc aat tgc tca atc tat ccc ggc cac 432  
 Arg His Glu Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His  
           130                          135                          140

ata aca ggt cac cgt atg gct tgg gat atg atg atg aac tgg tcg cct 480  
 Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser Pro  
           145                          150                          155                          160

aca acg gcc ctg gtg gta tcg cag ctg ctc cgg atc cca caa gct gtc 528  
 Thr Thr Ala Leu Val Val Ser Gln Leu Leu Arg Ile Pro Gln Ala Val  
                           165                          170                          175

gtg gac atg gtg gcg ggg gcc cat tgg gga gtc ctg gcg ggc ctc gcc 576  
 Val Asp Met Val Ala Gly Ala His Trp Gly Val Leu Ala Gly Leu Ala  
                           180                          185                          190

tac tat tcc atg gtg ggg aac tgg gct aag gtt ttg att gtg atg cta 624  
 Tyr Tyr Ser Met Val Gly Asn Trp Ala Lys Val Leu Ile Val Met Leu  
           195                          200                          205

ctc ttt gct ctc taatag 642  
 Leu Phe Ala Leu  
           210

<210> 4

<211> 212

<212> PRT

<213> Hepatitis C virus

<400> 4

Met Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys  
           1                          5                          10                          15

Leu Thr Ile Pro Ala Ser Ala Tyr Glu Val Arg Asn Val Ser Gly Met

20 25 30  
 Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala  
 35 40 45  
 Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys Val Arg Glu  
 50 55 60  
 Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr Leu Ala Ala  
 65 70 75 80  
 Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His Val Asp Leu  
 85 90 95  
 Leu Val Gly Ala Ala Ala Leu Cys Ser Ala Met Tyr Val Gly Asp Leu  
 100 105 110  
 Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Ile Ser Pro Arg  
 115 120 125  
 Arg His Glu Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His  
 130 135 140  
 Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser Pro  
 145 150 155 160  
 Thr Thr Ala Leu Val Val Ser Gln Leu Leu Arg Ile Pro Gln Ala Val  
 165 170 175  
 Val Asp Met Val Ala Gly Ala His Trp Gly Val Leu Ala Gly Leu Ala  
 180 185 190  
 Tyr Tyr Ser Met Val Gly Asn Trp Ala Lys Val Leu Ile Val Met Leu  
 195 200 205  
 Leu Phe Ala Leu  
 210

<210> 5

<211> 795

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

<222> 1..792

<220>

<221> mat\_peptide

<222> 1..789

<400> 5

atg ttg ggt aag gtc atc gat acc ctt aca tgc ggc ttc gcc gac ctc 48  
 Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu  
 1 5 10 15  
 gtg ggg tac att ccg ctc gtc ggc gcc ccc cta ggg ggc gct gcc agg 96  
 Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg  
 20 25 30

```

gcc ctg gcg cat ggc gtc cgg gtt ctg gag gac ggc gtg aac tat gca      144
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala
      35              40              45

aca ggg aat ttg ccc ggt tgc tct ttc tct atc ttc ctc ttg gct ttg      192
Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu
      50              55              60

ctg tcc tgt ctg acc gtt cca gct tcc gct tat gaa gtg cgc aac gtg      240
Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val
      65              70              75              80

tcc ggg atg tac cat gtc acg aac gac tgc tcc aac tca agc att gtg      288
Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val
      85              90              95

tat gag gca gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc      336
Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys
      100             105             110

gtt cgg gag aac aac tct tcc cgc tgc tgg gta gcg ctc acc ccc acg      384
Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr
      115             120             125

ctc gca gct agg aac gcc agc gtc ccc acc acg aca ata cga cgc cac      432
Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His
      130             135             140

gtc gat ttg ctc gtt ggg gcg gct gct ttc tgt tcc gct atg tac gtg      480
Val Asp Leu Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val
      145             150             155             160

ggg gac ctc tgc gga tct gtc ttc ctc gtc tcc cag ctg ttc acc atc      528
Gly Asp Leu Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Ile
      165             170             175

tcg cct cgc cgg cat gag acg gtg cag gac tgc aat tgc tca atc tat      576
Ser Pro Arg Arg His Glu Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr
      180             185             190

ccc ggc cac ata acg ggt cac cgt atg gct tgg gat atg atg atg aac      624
Pro Gly His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn
      195             200             205

tgg tcg cct aca acg gcc ctg gtg gta tcg cag ctg ctc cgg atc cca      672
Trp Ser Pro Thr Thr Ala Leu Val Val Ser Gln Leu Leu Arg Ile Pro
      210             215             220

caa gct gtc gtg gac atg gtg gcg ggg gcc cat tgg gga gtc ctg gcg      720
Gln Ala Val Val Asp Met Val Ala Gly Ala His Trp Gly Val Leu Ala
      225             230             235             240

ggg ctc gcc tac tat tcc atg gtg ggg aac tgg gct aag gtt ttg att      768
Gly Leu Ala Tyr Tyr Ser Met Val Gly Asn Trp Ala Lys Val Leu Ile
      245             250             255

gtg atg cta ctc ttt gct ccc taatag      795
Val Met Leu Leu Phe Ala Pro
      260
<210> 6
<211> 263
<212> PRT
<213> Hepatitis C virus

```

&lt;400&gt; 6

Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu  
 1 5 10 15  
 Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg  
 20 25 30  
 Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala  
 35 40 45  
 Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu  
 50 55 60  
 Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val  
 65 70 75 80  
 Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val  
 85 90 95  
 Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys  
 100 105 110  
 Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr  
 115 120 125  
 Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His  
 130 135 140  
 Val Asp Leu Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val  
 145 150 155 160  
 Gly Asp Leu Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Ile  
 165 170 175  
 Ser Pro Arg Arg His Glu Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr  
 180 185 190  
 Pro Gly His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn  
 195 200 205  
 Trp Ser Pro Thr Thr Ala Leu Val Val Ser Gln Leu Leu Arg Ile Pro  
 210 215 220  
 Gln Ala Val Val Asp Met Val Ala Gly Ala His Trp Gly Val Leu Ala  
 225 230 235 240  
 Gly Leu Ala Tyr Tyr Ser Met Val Gly Asn Trp Ala Lys Val Leu Ile  
 245 250 255  
 Val Met Leu Leu Phe Ala Pro  
 260

&lt;210&gt; 7

&lt;211&gt; 633

&lt;212&gt; DNA

&lt;213&gt; Hepatitis C virus

&lt;220&gt;

<221> CDS  
 <222> 1..630

<220>  
 <221> mat\_peptide  
 <222> 1..627

<400> 7

atg ttg ggt aag gtc atc gat acc ctt acg tgc ggc ttc gcc gac ctc	48
Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu	
1 5 10 15	
atg ggg tac att ccg ctc gtc ggc gcc ccc cta ggg ggt gct gcc aga	96
Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg	
20 25 30	
gcc ctg gcg cat ggc gtc cgg gtt ctg gaa gac ggc gtg aac tat gca	144
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala	
35 40 45	
aca ggg aat ttg cct ggt tgc tct ttc tct atc ttc ctc ttg gct tta	192
Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu	
50 55 60	
ctg tcc tgt ctg acc att cca gct tcc gct tat gag gtg cgc aac gtg	240
Leu Ser Cys Leu Thr Ile Pro Ala Ser Ala Tyr Glu Val Arg Asn Val	
65 70 75 80	
tcc ggg atg tac cat gtc acg aac gac tgc tcc aac tca agc att gtg	288
Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val	
85 90 95	
tat gag gca gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc	336
Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys	
100 105 110	
gtt cgg gag aac aac tct tcc cgc tgc tgg gta gcg ctc acc ccc acg	384
Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr	
115 120 125	
ctc gca gct agg aac gcc agc gtc ccc act acg aca ata cga cgc cac	432
Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His	
130 135 140	
gtc gat ttg ctc gtt ggg gcg gct gct ttc tgt tcc gct atg tac gtg	480
Val Asp Leu Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val	
145 150 155 160	
ggg gat ctc tgc gga tct gtc ttc ctc gtc tcc cag ctg ttc acc atc	528
Gly Asp Leu Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Ile	
165 170 175	
tcg cct cgc cgg cat gag acg gtg cag gac tgc aat tgc tca atc tat	576
Ser Pro Arg Arg His Glu Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr	
180 185 190	
ccc ggc cac ata aca ggt cac cgt atg gct tgg gat atg atg atg aac	624
Pro Gly His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn	
195 200 205	
tgg taatag	633
Trp	

<210> 8

<211> 209

<212> PRT

<213> Hepatitis C virus

<400> 8

```

Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu
 1             5             10             15

Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg
      20             25             30

Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala
      35             40             45

Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu
 50             55             60

Leu Ser Cys Leu Thr Ile Pro Ala Ser Ala Tyr Glu Val Arg Asn Val
 65             70             75             80

Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val
      85             90             95

Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys
      100             105             110

Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr
      115             120             125

Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His
      130             135             140

Val Asp Leu Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val
      145             150             155             160

Gly Asp Leu Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Ile
      165             170             175

Ser Pro Arg Arg His Glu Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr
      180             185             190

Pro Gly His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn
      195             200             205

```

Trp

<210> 9

<211> 483

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

&lt;222&gt; 1..480

&lt;220&gt;

&lt;221&gt; mat\_peptide

&lt;222&gt; 1..477

&lt;400&gt; 9

```

atg ccc ggt tgc tct ttc tct atc ttc ctc ttg gcc ctg ctg tcc tgt      48
Met Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys
   1               5               10              15

ctg acc ata cca gct tcc gct tat gaa gtg cgc aac gtg tcc ggg gtg      96
Leu Thr Ile Pro Ala Ser Ala Tyr Glu Val Arg Asn Val Ser Gly Val
           20               25              30

tac cat gtc acg aac gac tgc tcc aac tca agc ata gtg tat gag gca     144
Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala
           35               40              45

gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc gtt cgg gag     192
Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys Val Arg Glu
           50               55              60

ggc aac tcc tcc cgt tgc tgg gtg gcg ctc act ccc acg ctc gcg gcc     240
Gly Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr Leu Ala Ala
           65               70              75              80

agg aac gcc agc gtc ccc aca acg aca ata cga cgc cac gtc gat ttg     288
Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His Val Asp Leu
           85               90              95

ctc gtt ggg gct gct gct ttc tgt tcc gct atg tac gtg ggg gat ctc     336
Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val Gly Asp Leu
           100              105             110

tgc gga tct gtt ttc ctt gtt tcc cag ctg ttc acc ttc tca cct cgc     384
Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Phe Ser Pro Arg
           115              120             125

cgg cat caa aca gta cag gac tgc aac tgc tca atc tat ccc ggc cat     432
Arg His Gln Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His
           130              135             140

gta tca ggt cac cgc atg gct tgg gat atg atg atg aac tgg tcc taatag   483
Val Ser Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser
           145              150             155

```

&lt;210&gt; 10

&lt;211&gt; 159

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 10

```

Met Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys
   1               5               10              15

Leu Thr Ile Pro Ala Ser Ala Tyr Glu Val Arg Asn Val Ser Gly Val
           20               25              30

```



Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala  
           35                  40                  45  
 Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys Val Arg Glu  
           50                  55                  60  
 Gly Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr Leu Ala Ala  
           65                  70                  75                  80  
 Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His Val Asp Leu  
                           85                  90                  95  
 Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val Gly Asp Leu  
                   100                  105                  110  
 Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Phe Ser Pro Arg  
           115                  120                  125  
 Arg His Gln Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His  
           130                  135                  140  
 Val Ser Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser  
   145                  150                  155

<210> 11

<211> 480

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

<222> 1..477

<220>

<221> mat\_peptide

<222> 1..474

<400> 11

atg tcc ggt tgc tct ttc tct atc ttc ctc ttg gcc ctg ctg tcc tgt	48
Met Ser Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys	
1                  5                  10                  15	
ctg acc ata cca gct tcc gct tat gaa gtg cgc aac gtg tcc ggg gtg	96
Leu Thr Ile Pro Ala Ser Ala Tyr Glu Val Arg Asn Val Ser Gly Val	
20                  25                  30	
tac cat gtc acg aac gac tgc tcc aac tca agc ata gtg tat gag gca	144
Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala	
35                  40                  45	
gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc gtt cgg gag	192
Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys Val Arg Glu	
50                  55                  60	
ggc aac tcc tcc cgt tgc tgg gtg gcg ctc act ccc acg ctc gcg gcc	240
Gly Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr Leu Ala Ala	
65                  70                  75                  80	
agg aac gcc agc gtc ccc aca acg aca ata cga cgc cac gtc gat ttg	288
Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His Val Asp Leu	
85                  90                  95	

ctc gtt ggg gct gct gct ttc tgt tcc gct atg tac gtg ggg gat ctc 336  
 Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val Gly Asp Leu  
                   100                  105                  110

tgc gga tct gtt ttc ctt gtt tcc cag ctg ttc acc ttc tca cct cgc 384  
 Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Phe Ser Pro Arg  
                   115                  120                  125

cgg cat caa aca gta cag gac tgc aac tgc tca atc tat ccc ggc cat 432  
 Arg His Gln Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His  
                   130                  135                  140

gta tca ggt cac cgc atg gct tgg gat atg atg atg aac tgg taatag 480  
 Val Ser Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp  
                   145                  150                  155

<210> 12

<211> 158

<212> PRT

<213> Hepatitis C virus

<400> 12

Met Ser Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys  
           1                  5                  10                  15

Leu Thr Ile Pro Ala Ser Ala Tyr Glu Val Arg Asn Val Ser Gly Val  
                   20                  25                  30

Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala  
                   35                  40                  45

Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys Val Arg Glu  
                   50                  55                  60

Gly Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr Leu Ala Ala  
                   65                  70                  75                  80

Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His Val Asp Leu  
                   85                  90                  95

Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val Gly Asp Leu  
                   100                  105                  110

Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Phe Ser Pro Arg  
                   115                  120                  125

Arg His Gln Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His  
                   130                  135                  140

Val Ser Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp  
                   145                  150                  155

<210> 13

<211> 636

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

<222> 1..633

&lt;220&gt;

&lt;221&gt; mat\_peptide

&lt;222&gt; 1..630

&lt;400&gt; 13

atg ctg ggt aag gcc atc gat acc ctt acg tgc ggc ttc gcc gac ctc	48
Met Leu Gly Lys Ala Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu	
1 5 10 15	
gtg ggg tac att ccg ctc gtc ggc gcc ccc cta ggg ggc gct gcc agg	96
Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg	
20 25 30	
gcc ctg gcg cat ggc gtc cgg gtt ctg gaa gac ggc gtg aac tat gca	144
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala	
35 40 45	
aca ggg aat ttg cct ggt tgc tct ttc tct atc ttc ctc ttg gct tta	192
Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu	
50 55 60	
ctg tcc tgt cta acc att cca gct tcc gct tac gag gtg cgc aac gtg	240
Leu Ser Cys Leu Thr Ile Pro Ala Ser Ala Tyr Glu Val Arg Asn Val	
65 70 75 80	
tcc ggg atg tac cat gtc acg aac gac tgc tcc aac tca agc att gtg	288
Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val	
85 90 95	
tat gag gca gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc	336
Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys	
100 105 110	
gtt cgg gag aac aac tct tcc cgc tgc tgg gta gcg ctc acc ccc acg	384
Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr	
115 120 125	
ctc gcg gct agg aac gcc agc atc ccc act aca aca ata cga cgc cac	432
Leu Ala Ala Arg Asn Ala Ser Ile Pro Thr Thr Thr Ile Arg Arg His	
130 135 140	
gtc gat ttg ctc gtt ggg gcg gct gct ttc tgt tcc gct atg tac gtg	480
Val Asp Leu Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val	
145 150 155 160	
ggg gat ctc tgc gga tct gtc ttc ctc gtc tcc cag ctg ttc acc atc	528
Gly Asp Leu Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Ile	
165 170 175	
tcg cct cgc cgg cat gag acg gtg cag gac tgc aat tgc tca atc tat	576
Ser Pro Arg Arg His Glu Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr	
180 185 190	
ccc ggc cac ata acg ggt cac cgt atg gct tgg gat atg atg atg aac	624
Pro Gly His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn	
195 200 205	
tgg tac taatag	636
Trp Tyr	
210	

&lt;210&gt; 14

<211> 210  
 <212> PRT  
 <213> Hepatitis C virus

<400> 14

```

Met Leu Gly Lys Ala Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu
 1             5             10            15
Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg
      20             25            30
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala
      35             40            45
Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu
      50             55            60
Leu Ser Cys Leu Thr Ile Pro Ala Ser Ala Tyr Glu Val Arg Asn Val
      65             70            75            80
Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val
      85             90            95
Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys
      100            105            110
Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr
      115            120            125
Leu Ala Ala Arg Asn Ala Ser Ile Pro Thr Thr Thr Ile Arg Arg His
      130            135            140
Val Asp Leu Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val
      145            150            155            160
Gly Asp Leu Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Ile
      165            170            175
Ser Pro Arg Arg His Glu Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr
      180            185            190
Pro Gly His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn
      195            200            205

```

Trp Tyr  
 210

<210> 15

<211> 26  
 <212> DNA  
 <213> Hepatitis C virus

<400> 15

atgcccggtt gctctttctc tatctt

26

<210> 16

<211> 26  
 <212> DNA

<213> Hepatitis C virus

<400> 16

atgttgggta aggtcatcga taccct

26

<210> 17

<211> 30

<212> DNA

<213> Hepatitis C virus

<220>

<221> misc\_feature

<223>/note="antisense"

<400> 17

ctattaggac cagttcatca tcatatccca

30

<210> 18

<211> 27

<212> DNA

<213> Hepatitis C virus

<400> 18

ctattaccag ttcacatca tatccca

27

<210> 19

<211> 36

<212> DNA

<213> Hepatitis C virus

<400> 19

atacgacgcc acgtcgattc ccagctgttc accatc

36

<210> 20

<211> 36

<212> DNA

<213> Hepatitis C virus

<220>

<221> misc\_feature

<223>/note="antisense"

<400> 20

gatggtgaac agctgggaat cgacgtggcg tcgtat

36

<210> 21

<211> 723

<212> DNA  
 <213> Hepatitis C virus

<220>  
 <221> CDS  
 <222> 1..720

<220>  
 <221> mat\_peptide  
 <222> 1..717

<400> 21

atg ttg ggt aag gtc atc gat acc ctt aca tgc ggc ttc gcc gac ctc	48
Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu	
1 5 10 15	
gtg ggg tac att ccg ctc gtc ggc gcc ccc cta ggg ggc gct gcc agg	96
Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg	
20 25 30	
gcc ctg gcg cat ggc gtc cgg gtt ctg gag gac ggc gtg aac tat gca	144
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala	
35 40 45	
aca ggg aat ttg ccc ggt tgc tct ttc tct atc ttc ctc ttg gct ttg	192
Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu	
50 55 60	
ctg tcc tgt ctg acc gtt cca gct tcc gct tat gaa gtg cgc aac gtg	240
Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val	
65 70 75 80	
tcc ggg atg tac cat gtc acg aac gac tgc tcc aac tca agc att gtg	288
Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val	
85 90 95	
tat gag gca gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc	336
Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys	
100 105 110	
gtt cgg gag aac aac tct tcc cgc tgc tgg gta gcg ctc acc ccc acg	384
Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr	
115 120 125	
ctc gca gct agg aac gcc agc gtc ccc acc acg aca ata cga cgc cac	432
Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His	
130 135 140	
gtc gat tcc cag ctg ttc acc atc tcg cct cgc cgg cat gag acg gtg	480
Val Asp Ser Gln Leu Phe Thr Ile Ser Pro Arg Arg His Glu Thr Val	
145 150 155 160	
cag gac tgc aat tgc tca atc tat ccc ggc cac ata acg ggt cac cgt	528
Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg	
165 170 175	
atg gct tgg gat atg atg atg aac tgg tcg cct aca acg gcc ctg gtg	576
Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Thr Ala Leu Val	
180 185 190	
gta tcg cag ctg ctc cgg atc cca caa gct gtc gtg gac atg gtg gcg	624
Val Ser Gln Leu Leu Arg Ile Pro Gln Ala Val Val Asp Met Val Ala	
195 200 205	

ggg gcc cat tgg gga gtc ctg gcg ggt ctc gcc tac tat tcc atg gtg 672  
 Gly Ala His Trp Gly Val Leu Ala Gly Leu Ala Tyr Tyr Ser Met Val  
 210 215 220

ggg aac tgg gct aag gtt ttg att gtg atg cta ctc ttt gct ccc taatag 723  
 Gly Asn Trp Ala Lys Val Leu Ile Val Met Leu Leu Phe Ala Pro  
 225 230 235

<210> 22

<211> 239

<212> PRT

<213> Hepatitis C virus

<400> 22

Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu  
 1 5 10 15

Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg  
 20 25 30

Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala  
 35 40 45

Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu  
 50 55 60

Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val  
 65 70 75 80

Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val  
 85 90 95

Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys  
 100 105 110

Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr  
 115 120 125

Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His  
 130 135 140

Val Asp Ser Gln Leu Phe Thr Ile Ser Pro Arg Arg His Glu Thr Val  
 145 150 155 160

Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg  
 165 170 175

Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Thr Ala Leu Val  
 180 185 190

Val Ser Gln Leu Leu Arg Ile Pro Gln Ala Val Val Asp Met Val Ala  
 195 200 205

Gly Ala His Trp Gly Val Leu Ala Gly Leu Ala Tyr Tyr Ser Met Val  
 210 215 220

Gly Asn Trp Ala Lys Val Leu Ile Val Met Leu Leu Phe Ala Pro  
 225 230 235

<210> 23

<211> 561  
 <212> DNA  
 <213> Hepatitis C virus

<220>  
 <221> CDS  
 <222> 1..558

<220>  
 <221> mat\_peptide  
 <222> 1..555

<400> 23

atg ttg ggt aag gtc atc gat acc ctt aca tgc ggc ttc gcc gac ctc	48
Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu	
1 5 10 15	
gtg ggg tac att ccg ctc gtc ggc gcc ccc cta ggg ggc gct gcc agg	96
Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg	
20 25 30	
gcc ctg gcg cat ggc gtc cgg gtt ctg gag gac ggc gtg aac tat gca	144
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala	
35 40 45	
aca ggg aat ttg ccc ggt tgc tct ttc tct atc ttc ctc ttg gct ttg	192
Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu	
50 55 60	
ctg tcc tgt ctg acc gtt cca gct tcc gct tat gaa gtg cgc aac gtg	240
Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val	
65 70 75 80	
tcc ggg atg tac cat gtc acg aac gac tgc tcc aac tca agc att gtg	288
Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val	
85 90 95	
tat gag gca gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc	336
Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys	
100 105 110	
gtt cgg gag aac aac tct tcc cgc tgc tgg gta gcg ctc acc ccc acg	384
Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr	
115 120 125	
ctc gca gct agg aac gcc agc gtc ccc acc acg aca ata cga cgc cac	432
Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His	
130 135 140	
gtc gat tcc cag ctg ttc acc atc tcg cct cgc cgg cat gag acg gtg	480
Val Asp Ser Gln Leu Phe Thr Ile Ser Pro Arg Arg His Glu Thr Val	
145 150 155 160	
cag gac tgc aat tgc tca atc tat ccc ggc cac ata acg ggt cac cgt	528
Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg	
165 170 175	
atg gct tgg gat atg atg atg aac tgg taatag	561
Met Ala Trp Asp Met Met Met Asn Trp	
180 185	

<210> 24



<211> 185  
 <212> PRT  
 <213> Hepatitis C virus

<400> 24

```

Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu
 1             5             10             15
Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg
      20             25             30
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala
      35             40             45
Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu
      50             55             60
Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val
      65             70             75             80
Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val
      85             90             95
Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys
      100            105            110
Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr
      115            120            125
Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His
      130            135            140
Val Asp Ser Gln Leu Phe Thr Ile Ser Pro Arg Arg His Glu Thr Val
      145            150            155            160
Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg
      165            170            175

Met Ala Trp Asp Met Met Met Asn Trp
      180            185

```

<210> 25

<211> 606  
 <212> DNA  
 <213> Hepatitis C virus

<220>  
 <221> CDS  
 <222> 1..603

<220>  
 <221> mat\_peptide  
 <222> 1..600

<400> 25

```

atg ttg ggt aag gtc atc gat acc ctt aca tgc ggc ttc gcc gac ctc
Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu
 1             5             10             15

```

gtg ggg tac att ccg ctc gtc ggc gcc ccc cta ggg ggc gct gcc agg 96  
Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg  
20 25 30

gcc ctg gcg cat ggc gtc cgg gtt ctg gag gac ggc gtg aac tat gca 144  
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala  
35 40 45

aca ggg aat ttg ccc ggt tgc tct ttc tct atc ttc ctc ttg gct ttg 192  
Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu  
50 55 60

ctg tcc tgt ctg acc gtt cca gct tcc gct tat gaa gtg cgc aac gtg 240  
Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val  
65 70 75 80

tcc ggg atg tac cat gtc acg aac gac tgc tcc aac tca agc att gtg 288  
Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val  
85 90 95

tat gag gca gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc 336  
Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys  
100 105 110

gtt cgg gag aac aac tct tcc cgc tgc tgg gta gcg ctc acc ccc acg 384  
Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr  
115 120 125

ctc gca gct agg aac gcc agc gtc ccc acc acg aca ata cga cgc cac 432  
Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His  
130 135 140

gtc gat tcc cag ctg ttc acc atc tcg cct cgc cgg cat gag acg gtg 480  
Val Asp Ser Gln Leu Phe Thr Ile Ser Pro Arg Arg His Glu Thr Val  
145 150 155 160

cag gac tgc aat tgc tca atc tat ccc ggc cac ata acg ggt cac cgt 528  
Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg  
165 170 175

atg gct tgg gat atg atg atg aac tgg tcg cct aca acg gcc ctg gtg 576  
Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Thr Ala Leu Val  
180 185 190

gta tcg cag ctg ctc cgg atc ctc taatag 606  
Val Ser Gln Leu Leu Arg Ile Leu  
195 200

<210> 26

<211> 200

<212> PRT

<213> Hepatitis C virus

<400> 26

Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu  
1 5 10 15

Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg  
20 25 30

Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala

35                      40                      45  
 Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu  
     50                      55                      60  
 Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val  
     65                      70                      75                      80  
 Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val  
                             85                      90                      95  
 Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys  
                             100                      105                      110  
 Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr  
     115                      120                      125  
 Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His  
     130                      135                      140  
 Val Asp Ser Gln Leu Phe Thr Ile Ser Pro Arg Arg His Glu Thr Val  
     145                      150                      155                      160  
 Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg  
                             165                      170                      175  
 Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Thr Ala Leu Val  
                             180                      185                      190  
 Val Ser Gln Leu Leu Arg Ile Leu  
     195                      200

<210> 27

<211> 636

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

<222> 1..633

<220>

<221> mat\_peptide

<222> 1..630

<400> 27

atg ttg ggt aag gtc atc gat acc ctt aca tgc ggc ttc gcc gac ctc                      48  
 Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu  
     1                      5                      10                      15  
 gtg ggg tac att ccg ctc gtc ggc gcc ccc cta ggg ggc gct gcc agg                      96  
 Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg  
                             20                      25                      30  
 gcc ctg gcg cat ggc gtc cgg gtt ctg gag gac ggc gtg aac tat gca                      144  
 Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala  
                             35                      40                      45  
 aca ggg aat ttg ccc ggt tgc tct ttc tct atc ttc ctc ttg gct ttg                      192  
 Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu  
     50                      55                      60

ctg tcc tgt ctg acc gtt cca gct tcc gct tat gaa gtg cgc aac gtg 240  
 Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val  
 65 70 75 80

tcc ggg atg tac cat gtc acg aac gac tgc tcc aac tca agc att gtg 288  
 Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val  
 85 90 95

tat gag gca gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc 336  
 Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys  
 100 105 110

gtt cgg gag aac aac tct tcc cgc tgc tgg gta gcg ctc acc ccc acg 384  
 Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr  
 115 120 125

ctc gca gct agg aac gcc agc gtc ccc acc acg aca ata cga cgc cac 432  
 Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His  
 130 135 140

gtc gat tcc cag ctg ttc acc atc tcg cct cgc cgg cat gag acg gtg 480  
 Val Asp Ser Gln Leu Phe Thr Ile Ser Pro Arg Arg His Glu Thr Val  
 145 150 155 160

cag gac tgc aat tgc tca atc tat ccc ggc cac ata acg ggt cac cgt 528  
 Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg  
 165 170 175

atg gct tgg gat atg atg atg aac tgg tcg cct aca acg gcc ctg gtg 576  
 Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Thr Ala Leu Val  
 180 185 190

gta tcg cag ctg ctc cgg atc gtg atc gag ggc aga cac cat cac cac 624  
 Val Ser Gln Leu Leu Arg Ile Val Ile Glu Gly Arg His His His His  
 195 200 205

cat cac taatag 636  
 His His  
 210

<210> 28

<211> 210

<212> PRT

<213> Hepatitis C virus

<400> 28

Met Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu  
 1 5 10 15

Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg  
 20 25 30

Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala  
 35 40 45

Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu  
 50 55 60

Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val  
 65 70 75 80

Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val  
85 90 95

Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys  
100 105 110

Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr  
115 120 125

Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Thr Ile Arg Arg His  
130 135 140

Val Asp Ser Gln Leu Phe Thr Ile Ser Pro Arg Arg His Glu Thr Val  
145 150 155 160

Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg  
165 170 175

Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Thr Ala Leu Val  
180 185 190

Val Ser Gln Leu Leu Arg Ile Val Ile Glu Gly Arg His His His His  
195 200 205

His His  
210

<210> 29

<211> 630

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

<222> 1..627

<220>

<221> mat\_peptide

<222> 1..624

<400> 29

atg ggt aag gtc atc gat acc ctt acg tgc gga ttc gcc gat ctc atg	48
Met Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu Met	
1 5 10 15	
ggg tac atc ccg ctc gtc ggc gct ccc gta gga ggc gtc gca aga gcc	96
Gly Tyr Ile Pro Leu Val Gly Ala Pro Val Gly Gly Val Ala Arg Ala	
20 25 30	
ctt gcg cat ggc gtg agg gcc ctt gaa gac ggg ata aat ttc gca aca	144
Leu Ala His Gly Val Arg Ala Leu Glu Asp Gly Ile Asn Phe Ala Thr	
35 40 45	
ggg aat ttg ccc ggt tgc tcc ttt tct att ttc ctt ctc gct ctg ttc	192
Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Phe	
50 55 60	
tct tgc tta att cat cca gca gct agt cta gag tgg cgg aat acg tct	240
Ser Cys Leu Ile His Pro Ala Ala Ser Leu Glu Trp Arg Asn Thr Ser	
65 70 75 80	

ggc ctc tat gtc ctt acc aac gac tgt tcc aat agc agt att gtg tac 288  
 Gly Leu Tyr Val Leu Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr  
 85 90 95

gag gcc gat gac gtt att ctg cac aca ccc ggc tgc ata cct tgt gtc 336  
 Glu Ala Asp Asp Val Ile Leu His Thr Pro Gly Cys Ile Pro Cys Val  
 100 105 110

cag gac ggc aat aca tcc acg tgc tgg acc cca gtg aca cct aca gtg 384  
 Gln Asp Gly Asn Thr Ser Thr Cys Trp Thr Pro Val Thr Pro Thr Val  
 115 120 125

gca gtc aag tac gtc gga gca acc acc gct tgc ata cgc agt cat gtg 432  
 Ala Val Lys Tyr Val Gly Ala Thr Thr Ala Ser Ile Arg Ser His Val  
 130 135 140

gac cta tta gtg ggc gcg gcc acg atg tgc tct gcg ctc tac gtg ggt 480  
 Asp Leu Leu Val Gly Ala Ala Thr Met Cys Ser Ala Leu Tyr Val Gly  
 145 150 155 160

gac atg tgt ggg gct gtc ttc ctc gtg gga caa gcc ttc acg ttc aga 528  
 Asp Met Cys Gly Ala Val Phe Leu Val Gly Gln Ala Phe Thr Phe Arg  
 165 170 175

cct cgt cgc cat caa acg gtc cag acc tgt aac tgc tgc ctg tac cca 576  
 Pro Arg Arg His Gln Thr Val Gln Thr Cys Asn Cys Ser Leu Tyr Pro  
 180 185 190

ggc cat ctt tca gga cat cga atg gct tgg gat atg atg aac tgg 624  
 Gly His Leu Ser Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp  
 195 200 205

taatag 630

<210> 30

<211> 208  
 <212> PRT  
 <213> Hepatitis C virus

<400> 30

Met Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu Met  
 1 5 10 15

Gly Tyr Ile Pro Leu Val Gly Ala Pro Val Gly Gly Val Ala Arg Ala  
 20 25 30

Leu Ala His Gly Val Arg Ala Leu Glu Asp Gly Ile Asn Phe Ala Thr  
 35 40 45

Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Phe  
 50 55 60

Ser Cys Leu Ile His Pro Ala Ala Ser Leu Glu Trp Arg Asn Thr Ser  
 65 70 75 80

Gly Leu Tyr Val Leu Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr  
 85 90 95

Glu Ala Asp Asp Val Ile Leu His Thr Pro Gly Cys Ile Pro Cys Val  
 100 105 110

Gln Asp Gly Asn Thr Ser Thr Cys Trp Thr Pro Val Thr Pro Thr Val  
115 120 125

Ala Val Lys Tyr Val Gly Ala Thr Thr Ala Ser Ile Arg Ser His Val  
130 135 140

Asp Leu Leu Val Gly Ala Ala Thr Met Cys Ser Ala Leu Tyr Val Gly  
145 150 155 160

Asp Met Cys Gly Ala Val Phe Leu Val Gly Gln Ala Phe Thr Phe Arg  
165 170 175

Pro Arg Arg His Gln Thr Val Gln Thr Cys Asn Cys Ser Leu Tyr Pro  
180 185 190

Gly His Leu Ser Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp  
195 200 205

<210> 31

<211> 630

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

<222> 1..627

<220>

<221> mat\_peptide

<222> 1..624

<400> 31

atg ggt aag gtc atc gat acc cta acg tgc gga ttc gcc gat ctc atg 48  
Met Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu Met  
1 5 10 15

ggg tat atc ccg ctc gta ggc ggc ccc att ggg ggc gtc gca agg gct 96  
Gly Tyr Ile Pro Leu Val Gly Gly Pro Ile Gly Gly Val Ala Arg Ala  
20 25 30

ctc gca cac ggt gtg agg gtc ctt gag gac ggg gta aac tat gca aca 144  
Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala Thr  
35 40 45

ggg aat tta ccc ggt tgc tct ttc tct atc ttt att ctt gct ctt ctc 192  
Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Ile Leu Ala Leu Leu  
50 55 60

tcg tgt ctg acc gtt ccg gcc tct gca gtt ccc tac cga aat gcc tct 240  
Ser Cys Leu Thr Val Pro Ala Ser Ala Val Pro Tyr Arg Asn Ala Ser  
65 70 75 80

ggg att tat cat gtt acc aat gat tgc cca aac tct tcc ata gtc tat 288  
Gly Ile Tyr His Val Thr Asn Asp Cys Pro Asn Ser Ser Ile Val Tyr  
85 90 95

gag gca gat aac ctg atc cta cac gca cct ggt tgc gtg cct tgt gtc 336  
Glu Ala Asp Asn Leu Ile Leu His Ala Pro Gly Cys Val Pro Cys Val  
100 105 110

atg aca ggt aat gtg agt aga tgc tgg gtc caa att acc cct aca ctg 384

[illegible]

<400> 32

Met 1	Gly	Lys	Val	Ile 5	Asp	Thr	Leu	Thr	Cys 10	Gly	Phe	Ala	Asp	Leu 15	Met
Gly	Tyr	Ile	Pro 20	Leu	Val	Gly	Gly	Pro 25	Ile	Gly	Gly	Val	Ala 30	Arg	Ala
Leu	Ala	His 35	Gly	Val	Arg	Val	Leu 40	Glu	Asp	Gly	Val	Asn 45	Tyr	Ala	Thr
Gly	Asn 50	Leu	Pro	Gly	Cys	Ser 55	Phe	Ser	Ile	Phe	Ile 60	Leu	Ala	Leu	Leu
Ser 65	Cys	Leu	Thr	Val 70	Pro	Ala	Ser	Ala	Val	Pro 75	Tyr	Arg	Asn	Ala	Ser 80
Gly	Ile	Tyr	His 85	Val	Thr	Asn	Asp	Cys	Pro 90	Asn	Ser	Ser	Ile	Val 95	Tyr
Glu	Ala	Asp 100	Asn	Leu	Ile	Leu	His 105	Ala	Pro	Gly	Cys	Val	Pro 110	Cys	Val
Met	Thr	Gly 115	Asn	Val	Ser	Arg	Cys 120	Trp	Val	Gln	Ile	Thr 125	Pro	Thr	Leu
Ser 130	Ala	Pro	Ser	Leu	Gly	Ala 135	Val	Thr	Ala	Pro	Leu 140	Arg	Arg	Ala	Val
Asp 145	Tyr	Leu	Ala	Gly 150	Gly	Ala	Ala	Leu	Cys 155	Ser	Ala	Leu	Tyr	Val	Gly 160



Asp Ala Cys Gly Ala Leu Phe Leu Val Gly Gln Met Phe Thr Tyr Arg  
 165 170 175  
 Pro Arg Gln His Ala Thr Val Gln Asn Cys Asn Cys Ser Ile Tyr Ser  
 180 185 190  
 Gly His Val Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp  
 195 200 205  
 <210> 33  
 <211> 23  
 <212> DNA  
 <213> Hepatitis C virus  
 <400> 33  
 tgggatatga tgatgaactg gtc 23  
 <210> 34  
 <211> 30  
 <212> DNA  
 <213> Hepatitis C virus  
 <400> 34  
 ctattatggt ggtaagccac agagcaggag 30  
 <210> 35  
 <211> 1476  
 <212> DNA  
 <213> Hepatitis C virus  
 <220>  
 <221> CDS  
 <222> 1..1473  
 <220>  
 <221> mat\_peptide  
 <222> 1..1470  
 <400> 35  
 tgg gat atg atg atg aac tgg tgg cct aca acg gcc ctg gtg gta tgg 48  
 Trp Asp Met Met Met Asn Trp Ser Pro Thr Thr Ala Leu Val Val Ser  
 1 5 10 15  
 cag ctg ctc cgg atc cca caa gct gtc gtg gac atg gtg gcg ggg gcc 96  
 Gln Leu Leu Arg Ile Pro Gln Ala Val Val Asp Met Val Ala Gly Ala  
 20 25 30  
 cat tgg gga gtc ctg gcg ggc ctc gcc tac tat tcc atg gtg ggg aac 144  
 His Trp Gly Val Leu Ala Gly Leu Ala Tyr Tyr Ser Met Val Gly Asn  
 35 40 45  
 tgg gct aag gtt ttg gtt gtg atg cta ctc ttt gcc ggc gtc gac ggg 192  
 Trp Ala Lys Val Leu Val Met Leu Leu Phe Ala Gly Val Asp Gly  
 50 55 60  
 cat acc cgc gtg tca gga ggg gca gca gcc tcc gat acc agg ggc ctt 240

His	Thr	Arg	Val	Ser	Gly	Gly	Ala	Ala	Ala	Ser	Asp	Thr	Arg	Gly	Leu	
65					70					75					80	
gtg	tcc	ctc	ttt	agc	ccc	ggg	tcg	gct	cag	aaa	atc	cag	ctc	gta	aac	288
Val	Ser	Leu	Phe	Ser	Pro	Gly	Ser	Ala	Gln	Lys	Ile	Gln	Leu	Val	Asn	
				85					90					95		
acc	aac	ggc	agt	tgg	cac	atc	aac	agg	act	gcc	ctg	aac	tgc	aac	gac	336
Thr	Asn	Gly	Ser	Trp	His	Ile	Asn	Arg	Thr	Ala	Leu	Asn	Cys	Asn	Asp	
			100					105					110			
tcc	ctc	caa	aca	ggg	ttc	ttt	gcc	gca	cta	ttc	tac	aaa	cac	aaa	ttc	384
Ser	Leu	Gln	Thr	Gly	Phe	Phe	Ala	Ala	Leu	Phe	Tyr	Lys	His	Lys	Phe	
		115					120					125				
aac	tcg	tct	gga	tgc	cca	gag	cgc	ttg	gcc	agc	tgt	cgc	tcc	atc	gac	432
Asn	Ser	Ser	Gly	Cys	Pro	Glu	Arg	Leu	Ala	Ser	Cys	Arg	Ser	Ile	Asp	
	130					135					140					
aag	ttc	gct	cag	ggg	tgg	ggt	ccc	ctc	act	tac	act	gag	cct	aac	agc	480
Lys	Phe	Ala	Gln	Gly	Trp	Gly	Pro	Leu	Thr	Tyr	Thr	Glu	Pro	Asn	Ser	
	145				150					155					160	
tcg	gac	cag	agg	ccc	tac	tgc	tgg	cac	tac	gcg	cct	cga	ccg	tgt	ggt	528
Ser	Asp	Gln	Arg	Pro	Tyr	Cys	Trp	His	Tyr	Ala	Pro	Arg	Pro	Cys	Gly	
				165					170					175		
att	gta	ccc	gcg	tct	cag	gtg	tgc	ggt	cca	gtg	tat	tgc	ttc	acc	ccg	576
Ile	Val	Pro	Ala	Ser	Gln	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr	Pro	
			180					185					190			
agc	cct	gtt	gtg	gtg	ggg	acg	acc	gat	cgg	ttt	ggt	gtc	ccc	acg	tat	624
Ser	Pro	Val	Val	Val	Gly	Thr	Thr	Asp	Arg	Phe	Gly	Val	Pro	Thr	Tyr	
		195					200					205				
aac	tgg	ggg	gcg	aac	gac	tcg	gat	gtg	ctg	att	ctc	aac	aac	acg	cgg	672
Asn	Trp	Gly	Ala	Asn	Asp	Ser	Asp	Val	Leu	Ile	Leu	Asn	Asn	Thr	Arg	
	210						215				220					
ccg	ccg	cga	ggc	aac	tgg	ttc	ggc	tgt	aca	tgg	atg	aat	ggc	act	ggg	720
Pro	Pro	Arg	Gly	Asn	Trp	Phe	Gly	Cys	Thr	Trp	Met	Asn	Gly	Thr	Gly	
	225				230					235					240	
ttc	acc	aag	acg	tgt	ggg	ggc	ccc	ccg	tgc	aac	atc	ggg	ggg	gcc	ggc	768
Phe	Thr	Lys	Thr	Cys	Gly	Gly	Pro	Pro	Cys	Asn	Ile	Gly	Gly	Ala	Gly	
				245					250					255		
aac	aac	acc	ttg	acc	tgc	ccc	act	gac	tgt	ttt	cgg	aag	cac	ccc	gag	816
Asn	Asn	Thr	Leu	Thr	Cys	Pro	Thr	Asp	Cys	Phe	Arg	Lys	His	Pro	Glu	
			260					265					270			
gcc	acc	tac	gcc	aga	tgc	ggt	tct	ggg	ccc	tgg	ctg	aca	cct	agg	tgt	864
Ala	Thr	Tyr	Ala	Arg	Cys	Gly	Ser	Gly	Pro	Trp	Leu	Thr	Pro	Arg	Cys	
		275					280					285				
atg	gtt	cat	tac	cca	tat	agg	ctc	tgg	cac	tac	ccc	tgc	act	gtc	aac	912
Met	Val	His	Tyr	Pro	Tyr	Arg	Leu	Trp	His	Tyr	Pro	Cys	Thr	Val	Asn	
	290					295					300					
ttc	acc	atc	ttc	aag	gtt	agg	atg	tac	gtg	ggg	ggc	gtg	gag	cac	agg	960
Phe	Thr	Ile	Phe	Lys	Val	Arg	Met	Tyr	Val	Gly	Gly	Val	Glu	His	Arg	
	305				310					315					320	

ttc gaa gcc gca tgc aat tgg act cga gga gag cgt tgt gac ttg gag 1008  
 Phe Glu Ala Ala Cys Asn Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu  
 325 330 335  
 gac agg gat aga tca gag ctt agc ccg ctg ctg ctg tct aca aca gag 1056  
 Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu Ser Thr Thr Glu  
 340 345 350  
 tgg cag ata ctg ccc tgt tcc ttc acc acc ctg ccg gcc cta tcc acc 1104  
 Trp Gln Ile Leu Pro Cys Ser Phe Thr Thr Leu Pro Ala Leu Ser Thr  
 355 360 365  
 ggc ctg atc cac ctc cat cag aac atc gtg gac gtg caa tac ctg tac 1152  
 Gly Leu Ile His Leu His Gln Asn Ile Val Asp Val Gln Tyr Leu Tyr  
 370 375 380  
 ggt gta ggg tgc gcg gtt gtc tcc ctt gtc atc aaa tgg gag tat gtc 1200  
 Gly Val Gly Ser Ala Val Val Ser Leu Val Ile Lys Trp Glu Tyr Val  
 385 390 395 400  
 ctg ttg ctc ttc ctt ctc ctg gca gac gcg cgc atc tgc gcc tgc tta 1248  
 Leu Leu Leu Phe Leu Leu Leu Ala Asp Ala Arg Ile Cys Ala Cys Leu  
 405 410 415  
 tgg atg atg ctg ctg ata gct caa gct gag gcc gcc tta gag aac ctg 1296  
 Trp Met Met Leu Leu Ile Ala Gln Ala Glu Ala Ala Leu Glu Asn Leu  
 420 425 430  
 gtg gtc ctc aat gcg gcg gcc gtg gcc ggg gcg cat ggc act ctt tcc 1344  
 Val Val Leu Asn Ala Ala Ala Val Ala Gly Ala His Gly Thr Leu Ser  
 435 440 445  
 ttc ctt gtg ttc ttc tgt gct gcc tgg tac atc aag ggc agg ctg gtc 1392  
 Phe Leu Val Phe Phe Cys Ala Ala Trp Tyr Ile Lys Gly Arg Leu Val  
 450 455 460  
 cct ggt gcg gca tac gcc ttc tat ggc gtg tgg ccg ctg ctc ctg ctt 1440  
 Pro Gly Ala Ala Tyr Ala Phe Tyr Gly Val Trp Pro Leu Leu Leu Leu  
 465 470 475 480  
 ctg ctg gcc tta cca cca cga gct tat gcc tagtaa 1476  
 Leu Leu Ala Leu Pro Pro Arg Ala Tyr Ala  
 485 490

<210> 36

<211> 490

<212> PRT

<213> Hepatitis C virus

<400> 36

Trp Asp Met Met Met Asn Trp Ser Pro Thr Thr Ala Leu Val Val Ser  
 1 5 10 15  
 Gln Leu Leu Arg Ile Pro Gln Ala Val Val Asp Met Val Ala Gly Ala  
 20 25 30  
 His Trp Gly Val Leu Ala Gly Leu Ala Tyr Tyr Ser Met Val Gly Asn  
 35 40 45  
 Trp Ala Lys Val Leu Val Val Met Leu Leu Phe Ala Gly Val Asp Gly  
 50 55 60

His Thr Arg Val Ser Gly Gly Ala Ala Ala Ser Asp Thr Arg Gly Leu  
 65 70 75 80  
 Val Ser Leu Phe Ser Pro Gly Ser Ala Gln Lys Ile Gln Leu Val Asn  
 85 90 95  
 Thr Asn Gly Ser Trp His Ile Asn Arg Thr Ala Leu Asn Cys Asn Asp  
 100 105 110  
 Ser Leu Gln Thr Gly Phe Phe Ala Ala Leu Phe Tyr Lys His Lys Phe  
 115 120 125  
 Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys Arg Ser Ile Asp  
 130 135 140  
 Lys Phe Ala Gln Gly Trp Gly Pro Leu Thr Tyr Thr Glu Pro Asn Ser  
 145 150 155 160  
 Ser Asp Gln Arg Pro Tyr Cys Trp His Tyr Ala Pro Arg Pro Cys Gly  
 165 170 175  
 Ile Val Pro Ala Ser Gln Val Cys Gly Pro Val Tyr Cys Phe Thr Pro  
 180 185 190  
 Ser Pro Val Val Val Gly Thr Thr Asp Arg Phe Gly Val Pro Thr Tyr  
 195 200 205  
 Asn Trp Gly Ala Asn Asp Ser Asp Val Leu Ile Leu Asn Asn Thr Arg  
 210 215 220  
 Pro Pro Arg Gly Asn Trp Phe Gly Cys Thr Trp Met Asn Gly Thr Gly  
 225 230 235 240  
 Phe Thr Lys Thr Cys Gly Gly Pro Pro Cys Asn Ile Gly Gly Ala Gly  
 245 250 255  
 Asn Asn Thr Leu Thr Cys Pro Thr Asp Cys Phe Arg Lys His Pro Glu  
 260 265 270  
 Ala Thr Tyr Ala Arg Cys Gly Ser Gly Pro Trp Leu Thr Pro Arg Cys  
 275 280 285  
 Met Val His Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn  
 290 295 300  
 Phe Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg  
 305 310 315 320  
 Phe Glu Ala Ala Cys Asn Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu  
 325 330 335  
 Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu Ser Thr Thr Glu  
 340 345 350  
 Trp Gln Ile Leu Pro Cys Ser Phe Thr Thr Leu Pro Ala Leu Ser Thr  
 355 360 365  
 Gly Leu Ile His Leu His Gln Asn Ile Val Asp Val Gln Tyr Leu Tyr  
 370 375 380  
 Gly Val Gly Ser Ala Val Val Ser Leu Val Ile Lys Trp Glu Tyr Val  
 385 390 395 400

Leu Leu Leu Phe Leu Leu Leu Ala Asp Ala Arg Ile Cys Ala Cys Leu  
 405 410 415  
 Trp Met Met Leu Leu Ile Ala Gln Ala Glu Ala Ala Leu Glu Asn Leu  
 420 425 430  
 Val Val Leu Asn Ala Ala Ala Val Ala Gly Ala His Gly Thr Leu Ser  
 435 440 445  
 Phe Leu Val Phe Phe Cys Ala Ala Trp Tyr Ile Lys Gly Arg Leu Val  
 450 455 460  
 Pro Gly Ala Ala Tyr Ala Phe Tyr Gly Val Trp Pro Leu Leu Leu Leu  
 465 470 475 480  
 Leu Leu Ala Leu Pro Pro Arg Ala Tyr Ala  
 485 490

<210> 37

<211> 1021

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

<222> 2..1018

<220>

<221> mat\_peptide

<222> 2..1015

<400> 37

g atc cca caa gct gtc gtg gac atg gtg gcg ggg gcc cat tgg gga	46
Ile Pro Gln Ala Val Val Asp Met Val Ala Gly Ala His Trp Gly	
1 5 10 15	
gtc ctg gcg ggc ctc gcc tac tat tcc atg gtg ggg aac tgg gct aag	94
Val Leu Ala Gly Leu Ala Tyr Tyr Ser Met Val Gly Asn Trp Ala Lys	
20 25 30	
gtt ttg gtt gtg atg cta ctc ttt gcc ggc gtc gac ggg cat acc cgc	142
Val Leu Val Val Met Leu Leu Phe Ala Gly Val Asp Gly His Thr Arg	
35 40 45	
gtg tca gga ggg gca gca gcc tcc gat acc agg ggc ctt gtg tcc ctc	190
Val Ser Gly Gly Ala Ala Ala Ser Asp Thr Arg Gly Leu Val Ser Leu	
50 55 60	
ttt agc ccc ggg tcg gct cag aaa atc cag ctc gta aac acc aac ggc	238
Phe Ser Pro Gly Ser Ala Gln Lys Ile Gln Leu Val Asn Thr Asn Gly	
65 70 75	
agt tgg cac atc aac agg act gcc ctg aac tgc aac gac tcc ctc caa	286
Ser Trp His Ile Asn Arg Thr Ala Leu Asn Cys Asn Asp Ser Leu Gln	
80 85 90 95	
aca ggg ttc ttt gcc gca cta ttc tac aaa cac aaa ttc aac tcg tct	334
Thr Gly Phe Phe Ala Ala Leu Phe Tyr Lys His Lys Phe Asn Ser Ser	
100 105 110	

[illegible]

<210> 38

<211> 338

<212> PRT

<213> Hepatitis C virus

&lt;400&gt; 38

Ile Pro Gln Ala Val Val Asp Met Val Ala Gly Ala His Trp Gly Val  
 1 5 10 15  
 Leu Ala Gly Leu Ala Tyr Tyr Ser Met Val Gly Asn Trp Ala Lys Val  
 20 25 30  
 Leu Val Val Met Leu Leu Phe Ala Gly Val Asp Gly His Thr Arg Val  
 35 40 45  
 Ser Gly Gly Ala Ala Ala Ser Asp Thr Arg Gly Leu Val Ser Leu Phe  
 50 55 60  
 Ser Pro Gly Ser Ala Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser  
 65 70 75 80  
 Trp His Ile Asn Arg Thr Ala Leu Asn Cys Asn Asp Ser Leu Gln Thr  
 85 90 95  
 Gly Phe Phe Ala Ala Leu Phe Tyr Lys His Lys Phe Asn Ser Ser Gly  
 100 105 110  
 Cys Pro Glu Arg Leu Ala Ser Cys Arg Ser Ile Asp Lys Phe Ala Gln  
 115 120 125  
 Gly Trp Gly Pro Leu Thr Tyr Thr Glu Pro Asn Ser Ser Asp Gln Arg  
 130 135 140  
 Pro Tyr Cys Trp His Tyr Ala Pro Arg Pro Cys Gly Ile Val Pro Ala  
 145 150 155 160  
 Ser Gln Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val  
 165 170 175  
 Val Gly Thr Thr Asp Arg Phe Gly Val Pro Thr Tyr Asn Trp Gly Ala  
 180 185 190  
 Asn Asp Ser Asp Val Leu Ile Leu Asn Asn Thr Arg Pro Pro Arg Gly  
 195 200 205  
 Asn Trp Phe Gly Cys Thr Trp Met Asn Gly Thr Gly Phe Thr Lys Thr  
 210 215 220  
 Cys Gly Gly Pro Pro Cys Asn Ile Gly Gly Ala Gly Asn Asn Thr Leu  
 225 230 235 240  
 Thr Cys Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala Thr Tyr Ala  
 245 250 255  
 Arg Cys Gly Ser Gly Pro Trp Leu Thr Pro Arg Cys Met Val His Tyr  
 260 265 270  
 Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe Thr Ile Phe  
 275 280 285  
 Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg Phe Glu Ala Ala  
 290 295 300  
 Cys Asn Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu Asp Arg Asp Arg  
 305 310 315 320

Arg Ala

<211> 1034

<212> DNA

<213> Hepatitis C virus

 $\langle 220 \rangle$ 

&lt;221&gt; CDS

<222> 2..1032

<220>

```
<221> mat_peptide
```

<222> 2..1029

<400> 39

g atc cca caa gct gtc gtg gac atg gtg gcg ggg gcc cat tgg gga 46  
Ile Pro Gln Ala Val Val Asp Met Val Ala Gly Ala His Trp Gly  
1 5 10 15

gtc ctg gcg ggc ctc gcc tac tat tcc atg gtg ggg aac tgg gct aag 94  
Val Leu Ala Gly Leu Ala Tyr Tyr Ser Met Val Gly Asn Trp Ala Lys  
20 25 30

ggt ttg gtt gtg atg cta ctc ttt gcc ggc gtc gac ggg cat acc cgc 142  
Val Leu Val Val Met Leu Leu Phe Ala Gly Val Asp Gly His Thr Arg  
35 40 45

gtg tca gga ggg gca gca gcc tcc gat acc agg ggc ctt gtg tcc ctc 190  
Val Ser Gly Gly Ala Ala Ala Ser Asp Thr Arg Gly Leu Val Ser Leu  
50 55 60

t t t a g c c c c g g g t c g g c t a g a a a a t c c a g c t c g t a a a c a c c a a c g g c 238  
P h e S e r P r o G l y S e r A l a G l n L y s I l e G l n L e u V a l A s n T h r A s n G l y  
65 70 75

agt tgg cac atc aac agg act gcc ctg aac tgc aac gac tcc ctc caa 286  
Ser Trp His Ile Asn Arg Thr Ala Leu Asn Cys Asn Asp Ser Leu Gln  
80 85 90 95

aca ggg ttc ttt gcc gca cta ttc tac aaa cac aaa ttc aac tcg tct 334  
Thr Gly Phe Phe Ala Ala Leu Phe Tyr Lys His Lys Phe Asn Ser Ser  
100 105 110

gga tgc cca gag cgc ttg gcc agc tgt cgc tcc atc gac aag ttc gct 382  
Gly Cys Pro Glu Arg Leu Ala Ser Cys Arg Ser Ile Asp Lys Phe Ala  
115 120 125

cag ggg tgg ggt ccc ctc act tac act gag cct aac agc tcg gac cag 430  
Gln Gly Trp Gly Pro Leu Thr Tyr Thr Glu Pro Asn Ser Ser Asp Gln  
130 135 140

agg ccc tac tgc tgg cac tac gcg cct cga ccg tgt ggt att gta ccc 478  
Arg Pro Tyr Cys Trp His Tyr Ala Pro Arg Pro Cys Gly Ile Val Pro  
145 150 155



gcg tct cag gtg tgc ggt cca gtg tat tgc ttc acc ccg agc cct gtt 526  
 Ala Ser Gln Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val  
 160 165 170 175  
 gtg gtg ggg acg acc gat cgg ttt ggt gtc ccc acg tat aac tgg ggg 574  
 Val Val Gly Thr Thr Asp Arg Phe Gly Val Pro Thr Tyr Asn Trp Gly  
 180 185 190  
 gcg aac gac tcg gat gtg ctg att ctc aac aac acg cgg ccg ccg cga 622  
 Ala Asn Asp Ser Asp Val Leu Ile Leu Asn Asn Thr Arg Pro Pro Arg  
 195 200 205  
 ggc aac tgg ttc ggc tgt aca tgg atg aat ggc act ggg ttc acc aag 670  
 Gly Asn Trp Phe Gly Cys Thr Trp Met Asn Gly Thr Gly Phe Thr Lys  
 210 215 220  
 acg tgt ggg ggc ccc ccg tgc aac atc ggg ggg gcc ggc aac aac acc 718  
 Thr Cys Gly Gly Pro Pro Cys Asn Ile Gly Gly Ala Gly Asn Asn Thr  
 225 230 235  
 ttg acc tgc ccc act gac tgt ttt cgg aag cac ccc gag gcc acc tac 766  
 Leu Thr Cys Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala Thr Tyr  
 240 245 250 255  
 gcc aga tgc ggt tct ggg ccc tgg ctg aca cct agg tgt atg gtt cat 814  
 Ala Arg Cys Gly Ser Gly Pro Trp Leu Thr Pro Arg Cys Met Val His  
 260 265 270  
 tac cca tat agg ctc tgg cac tac ccc tgc act gtc aac ttc acc atc 862  
 Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe Thr Ile  
 275 280 285  
 ttc aag gtt agg atg tac gtg ggg ggc gtg gag cac agg ttc gaa gcc 910  
 Phe Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg Phe Glu Ala  
 290 295 300  
 gca tgc aat tgg act cga gga gag cgt tgt gac ttg gag gac agg gat 958  
 Ala Cys Asn Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu Asp Arg Asp  
 305 310 315  
 aga tca gag ctt agc ccg ctg ctg ctg tct aca aca ggt gat cga ggg 1006  
 Arg Ser Glu Leu Ser Pro Leu Leu Leu Ser Thr Thr Gly Asp Arg Gly  
 320 325 330 335  
 cag aca cca tca cca cca tca cta at ag 1034  
 Gln Thr Pro Ser Pro Pro Ser Leu  
 340  
 <210> 40  
 <211> 343  
 <212> PRT  
 <213> Hepatitis C virus  
 <400> 40  
 Ile Pro Gln Ala Val Val Asp Met Val Ala Gly Ala His Trp Gly Val  
 1 5 10 15  
 Leu Ala Gly Leu Ala Tyr Tyr Ser Met Val Gly Asn Trp Ala Lys Val  
 20 25 30  
 Leu Val Val Met Leu Leu Phe Ala Gly Val Asp Gly His Thr Arg Val

35                      40                      45  
 Ser Gly Gly Ala Ala Ala Ser Asp Thr Arg Gly Leu Val Ser Leu Phe  
     50                      55                      60  
 Ser Pro Gly Ser Ala Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser  
     65                      70                      75                      80  
 Trp His Ile Asn Arg Thr Ala Leu Asn Cys Asn Asp Ser Leu Gln Thr  
                     85                      90                      95  
 Gly Phe Phe Ala Ala Leu Phe Tyr Lys His Lys Phe Asn Ser Ser Gly  
                     100                      105                      110  
 Cys Pro Glu Arg Leu Ala Ser Cys Arg Ser Ile Asp Lys Phe Ala Gln  
                     115                      120                      125  
 Gly Trp Gly Pro Leu Thr Tyr Thr Glu Pro Asn Ser Ser Asp Gln Arg  
     130                      135                      140  
 Pro Tyr Cys Trp His Tyr Ala Pro Arg Pro Cys Gly Ile Val Pro Ala  
 145                      150                      155                      160  
 Ser Gln Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val  
                     165                      170                      175  
 Val Gly Thr Thr Asp Arg Phe Gly Val Pro Thr Tyr Asn Trp Gly Ala  
                     180                      185                      190  
 Asn Asp Ser Asp Val Leu Ile Leu Asn Asn Thr Arg Pro Pro Arg Gly  
                     195                      200                      205  
 Asn Trp Phe Gly Cys Thr Trp Met Asn Gly Thr Gly Phe Thr Lys Thr  
     210                      215                      220  
 Cys Gly Gly Pro Pro Cys Asn Ile Gly Gly Ala Gly Asn Asn Thr Leu  
 225                      230                      235                      240  
 Thr Cys Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala Thr Tyr Ala  
                     245                      250                      255  
 Arg Cys Gly Ser Gly Pro Trp Leu Thr Pro Arg Cys Met Val His Tyr  
                     260                      265                      270  
 Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe Thr Ile Phe  
                     275                      280                      285  
 Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg Phe Glu Ala Ala  
     290                      295                      300  
 Cys Asn Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu Asp Arg Asp Arg  
 305                      310                      315                      320  
 Ser Glu Leu Ser Pro Leu Leu Leu Ser Thr Thr Gly Asp Arg Gly Gln  
                     325                      330                      335  
 Thr Pro Ser Pro Pro Ser Leu  
                     340  
 <210> 41  
 <211> 945  
 <212> DNA  
 <213> Hepatitis C virus

<220>  
 <221> CDS  
 <222> 1..942

<220>  
 <221> mat\_peptide  
 <222> 1..939

<400> 41

atg gtg ggg aac tgg gct aag gtt ttg gtt gtg atg cta ctc ttt gcc	48
Met Val Gly Asn Trp Ala Lys Val Leu Val Val Met Leu Leu Phe Ala	
1 5 10 15	
ggc gtc gac ggg cat acc cgc gtg tca gga ggg gca gca gcc tcc gat	96
Gly Val Asp Gly His Thr Arg Val Ser Gly Gly Ala Ala Ala Ser Asp	
20 25 30	
acc agg ggc ctt gtg tcc ctc ttt agc ccc ggg tcg gct cag aaa atc	144
Thr Arg Gly Leu Val Ser Leu Phe Ser Pro Gly Ser Ala Gln Lys Ile	
35 40 45	
cag ctc gta aac acc aac ggc agt tgg cac atc aac agg act gcc ctg	192
Gln Leu Val Asn Thr Asn Gly Ser Trp His Ile Asn Arg Thr Ala Leu	
50 55 60	
aac tgc aac gac tcc ctc caa aca ggg ttc ttt gcc gca cta ttc tac	240
Asn Cys Asn Asp Ser Leu Gln Thr Gly Phe Phe Ala Ala Leu Phe Tyr	
65 70 75 80	
aaa cac aaa ttc aac tcg tct gga tgc cca gag cgc ttg gcc agc tgt	288
Lys His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys	
85 90 95	
cgc tcc atc gac aag ttc gct cag ggg tgg ggt ccc ctc act tac act	336
Arg Ser Ile Asp Lys Phe Ala Gln Gly Trp Gly Pro Leu Thr Tyr Thr	
100 105 110	
gag cct aac agc tcg gac cag agg ccc tac tgc tgg cac tac gcg cct	384
Glu Pro Asn Ser Ser Asp Gln Arg Pro Tyr Cys Trp His Tyr Ala Pro	
115 120 125	
cga ccg tgt ggt att gta ccc gcg tct cag gtg tgc ggt cca gtg tat	432
Arg Pro Cys Gly Ile Val Pro Ala Ser Gln Val Cys Gly Pro Val Tyr	
130 135 140	
tgc ttc acc ccg agc cct gtt gtg gtg ggg acg acc gat cgg ttt ggt	480
Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Phe Gly	
145 150 155 160	
gtc ccc acg tat aac tgg ggg gcg aac gac tcg gat gtg ctg att ctc	528
Val Pro Thr Tyr Asn Trp Gly Ala Asn Asp Ser Asp Val Leu Ile Leu	
165 170 175	
aac aac acg cgg ccg ccg cga ggc aac tgg ttc ggc tgt aca tgg atg	576
Asn Asn Thr Arg Pro Pro Arg Gly Asn Trp Phe Gly Cys Thr Trp Met	
180 185 190	
aat ggc act ggg ttc acc aag acg tgt ggg ggc ccc ccg tgc aac atc	624
Asn Gly Thr Gly Phe Thr Lys Thr Cys Gly Gly Pro Pro Cys Asn Ile	
195 200 205	
ggg ggg gcc ggc aac aac acc ttg acc tgc ccc act gac tgt ttt cgg	672

Gly Gly Ala Gly Asn Asn Thr Leu Thr Cys Pro Thr Asp Cys Phe Arg  
 210 215 220  
 aag cac ccc gag gcc acc tac gcc aga tgc ggt tct ggg ccc tgg ctg 720  
 Lys His Pro Glu Ala Thr Tyr Ala Arg Cys Gly Ser Gly Pro Trp Leu  
 225 230 235 240  
 aca cct agg tgt atg gtt cat tac cca tat agg ctc tgg cac tac ccc 768  
 Thr Pro Arg Cys Met Val His Tyr Pro Tyr Arg Leu Trp His Tyr Pro  
 245 250 255  
 tgc act gtc aac ttc acc atc ttc aag gtt agg atg tac gtg ggg ggc 816  
 Cys Thr Val Asn Phe Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly  
 260 265 270  
 gtg gag cac agg ttc gaa gcc gca tgc aat tgg act cga gga gag cgt 864  
 Val Glu His Arg Phe Glu Ala Ala Cys Asn Trp Thr Arg Gly Glu Arg  
 275 280 285  
 tgt gac ttg gag gac agg gat aga tca gag ctt agc ccg ctg ctg ctg 912  
 Cys Asp Leu Glu Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu  
 290 295 300  
 tct aca aca gag tgg cag agc tta att aat tag 945  
 Ser Thr Thr Glu Trp Gln Ser Leu Ile Asn  
 305 310  
 <210> 42  
 <211> 314  
 <212> PRT  
 <213> Hepatitis C virus  
 <400> 42  
 Met Val Gly Asn Trp Ala Lys Val Leu Val Val Met Leu Leu Phe Ala  
 1 5 10 15  
 Gly Val Asp Gly His Thr Arg Val Ser Gly Gly Ala Ala Ala Ser Asp  
 20 25 30  
 Thr Arg Gly Leu Val Ser Leu Phe Ser Pro Gly Ser Ala Gln Lys Ile  
 35 40 45  
 Gln Leu Val Asn Thr Asn Gly Ser Trp His Ile Asn Arg Thr Ala Leu  
 50 55 60  
 Asn Cys Asn Asp Ser Leu Gln Thr Gly Phe Phe Ala Ala Leu Phe Tyr  
 65 70 75 80  
 Lys His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys  
 85 90 95  
 Arg Ser Ile Asp Lys Phe Ala Gln Gly Trp Gly Pro Leu Thr Tyr Thr  
 100 105 110  
 Glu Pro Asn Ser Ser Asp Gln Arg Pro Tyr Cys Trp His Tyr Ala Pro  
 115 120 125  
 Arg Pro Cys Gly Ile Val Pro Ala Ser Gln Val Cys Gly Pro Val Tyr  
 130 135 140  
 Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Phe Gly  
 145 150 155 160

Val Pro Thr Tyr Asn Trp Gly Ala Asn Asp Ser Asp Val Leu Ile Leu  
165 170 175

Asn Asn Thr Arg Pro Pro Arg Gly Asn Trp Phe Gly Cys Thr Trp Met  
180 185 190

Asn Gly Thr Gly Phe Thr Lys Thr Cys Gly Gly Pro Pro Cys Asn Ile  
195 200 205

Gly Gly Ala Gly Asn Asn Thr Leu Thr Cys Pro Thr Asp Cys Phe Arg  
210 215 220

Lys His Pro Glu Ala Thr Tyr Ala Arg Cys Gly Ser Gly Pro Trp Leu  
225 230 235 240

Thr Pro Arg Cys Met Val His Tyr Pro Tyr Arg Leu Trp His Tyr Pro  
245 250 255

Cys Thr Val Asn Phe Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly  
260 265 270

Val Glu His Arg Phe Glu Ala Ala Cys Asn Trp Thr Arg Gly Glu Arg  
275 280 285

Cys Asp Leu Glu Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu  
290 295 300

Ser Thr Thr Glu Trp Gln Ser Leu Ile Asn  
305 310

<210> 43

<211> 961

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

<222> 1..958

<220>

<221> mat\_peptide

<222> 1..955

<400> 43

atg	gtg	ggg	aac	tgg	gct	aag	gtt	ttg	gtt	gtg	atg	cta	ctc	ttt	gcc	48
Met	Val	Gly	Asn	Trp	Ala	Lys	Val	Leu	Val	Val	Met	Leu	Leu	Phe	Ala	
1				5				10						15		
ggc	gtc	gac	ggg	cat	acc	cgc	gtg	tca	gga	ggg	gca	gca	gcc	tcc	gat	96
Gly	Val	Asp	Gly	His	Thr	Arg	Val	Ser	Gly	Gly	Ala	Ala	Ala	Ser	Asp	
			20					25					30			
acc	agg	ggc	ctt	gtg	tcc	ctc	ttt	agc	ccc	ggg	tgg	gct	cag	aaa	atc	144
Thr	Arg	Gly	Leu	Val	Ser	Leu	Phe	Ser	Pro	Gly	Ser	Ala	Gln	Lys	Ile	
			35				40					45				
cag	ctc	gta	aac	acc	aac	ggc	agt	tgg	cac	atc	aac	agg	act	gcc	ctg	192
Gln	Leu	Val	Asn	Thr	Asn	Gly	Ser	Trp	His	Ile	Asn	Arg	Thr	Ala	Leu	
			50			55					60					

aac tgc aac gac tcc ctc caa aca ggg ttc ttt gcc gca cta ttc tac Asn Cys Asn Asp Ser Leu Gln Thr Gly Phe Phe Ala Ala Leu Phe Tyr 65 70 75 80	240
aaa cac aaa ttc aac tcg tct gga tgc cca gag cgc ttg gcc agc tgt Lys His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys 85 90 95	288
cgc tcc atc gac aag ttc gct cag ggg tgg ggt ccc ctc act tac act Arg Ser Ile Asp Lys Phe Ala Gln Gly Trp Gly Pro Leu Thr Tyr Thr 100 105 110	336
gag cct aac agc tcg gac cag agg ccc tac tgc tgg cac tac gcg cct Glu Pro Asn Ser Ser Asp Gln Arg Pro Tyr Cys Trp His Tyr Ala Pro 115 120 125	384
cga ccg tgt ggt att gta ccc gcg tct cag gtg tgc ggt cca gtg tat Arg Pro Cys Gly Ile Val Pro Ala Ser Gln Val Cys Gly Pro Val Tyr 130 135 140	432
tgc ttc acc ccg agc cct gtt gtg gtg ggg acg acc gat cgg ttt ggt Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Phe Gly 145 150 155 160	480
gtc ccc acg tat aac tgg ggg gcg aac gac tcg gat gtg ctg att ctc Val Pro Thr Tyr Asn Trp Gly Ala Asn Asp Ser Asp Val Leu Ile Leu 165 170 175	528
aac aac acg ccg ccg ccg cga ggc aac tgg ttc ggc tgt aca tgg atg Asn Asn Thr Arg Pro Pro Arg Gly Asn Trp Phe Gly Cys Thr Trp Met 180 185 190	576
aat ggc act ggg ttc acc aag acg tgt ggg ggc ccc ccg tgc aac atc Asn Gly Thr Gly Phe Thr Lys Thr Cys Gly Gly Pro Pro Cys Asn Ile 195 200 205	624
ggg ggg gcc ggc aac aac acc ttg acc tgc ccc act gac tgt ttt cgg Gly Gly Ala Gly Asn Asn Thr Leu Thr Cys Pro Thr Asp Cys Phe Arg 210 215 220	672
aag cac ccc gag gcc acc tac gcc aga tgc ggt tct ggg ccc tgg ctg Lys His Pro Glu Ala Thr Tyr Ala Arg Cys Gly Ser Gly Pro Trp Leu 225 230 235 240	720
aca cct agg tgt atg gtt cat tac cca tat agg ctc tgg cac tac ccc Thr Pro Arg Cys Met Val His Tyr Pro Tyr Arg Leu Trp His Tyr Pro 245 250 255	768
tgc act gtc aac ttc acc atc ttc aag gtt agg atg tac gtg ggg ggc Cys Thr Val Asn Phe Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly 260 265 270	816
gtg gag cac agg ttc gaa gcc gca tgc aat tgg act cga gga gag cgt Val Glu His Arg Phe Glu Ala Ala Cys Asn Trp Thr Arg Gly Glu Arg 275 280 285	864
tgt gac ttg gag gac agg gat aga tca gag ctt agc ccg ctg ctg ctg Cys Asp Leu Glu Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu 290 295 300	912
tct aca aca ggt gat cga ggg cag aca cca tca cca cca tca cta a Ser Thr Thr Gly Asp Arg Gly Gln Thr Pro Ser Pro Pro Ser Leu 305 310 315	958

tag

&lt;210&gt; 44

&lt;211&gt; 319

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 44

Met Val Gly Asn Trp Ala Lys Val Leu Val Val Met Leu Leu Phe Ala  
 1 5 10 15  
 Gly Val Asp Gly His Thr Arg Val Ser Gly Gly Ala Ala Ala Ser Asp  
 20 25 30  
 Thr Arg Gly Leu Val Ser Leu Phe Ser Pro Gly Ser Ala Gln Lys Ile  
 35 40 45  
 Gln Leu Val Asn Thr Asn Gly Ser Trp His Ile Asn Arg Thr Ala Leu  
 50 55 60  
 Asn Cys Asn Asp Ser Leu Gln Thr Gly Phe Phe Ala Ala Leu Phe Tyr  
 65 70 75 80  
 Lys His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys  
 85 90 95  
 Arg Ser Ile Asp Lys Phe Ala Gln Gly Trp Gly Pro Leu Thr Tyr Thr  
 100 105 110  
 Glu Pro Asn Ser Ser Asp Gln Arg Pro Tyr Cys Trp His Tyr Ala Pro  
 115 120 125  
 Arg Pro Cys Gly Ile Val Pro Ala Ser Gln Val Cys Gly Pro Val Tyr  
 130 135 140  
 Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Phe Gly  
 145 150 155 160  
 Val Pro Thr Tyr Asn Trp Gly Ala Asn Asp Ser Asp Val Leu Ile Leu  
 165 170 175  
 Asn Asn Thr Arg Pro Pro Arg Gly Asn Trp Phe Gly Cys Thr Trp Met  
 180 185 190  
 Asn Gly Thr Gly Phe Thr Lys Thr Cys Gly Gly Pro Pro Cys Asn Ile  
 195 200 205  
 Gly Gly Ala Gly Asn Asn Thr Leu Thr Cys Pro Thr Asp Cys Phe Arg  
 210 215 220  
 Lys His Pro Glu Ala Thr Tyr Ala Arg Cys Gly Ser Gly Pro Trp Leu  
 225 230 235 240  
 Thr Pro Arg Cys Met Val His Tyr Pro Tyr Arg Leu Trp His Tyr Pro  
 245 250 255  
 Cys Thr Val Asn Phe Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly  
 260 265 270  
 Val Glu His Arg Phe Glu Ala Ala Cys Asn Trp Thr Arg Gly Glu Arg

275	280	285	
Cys Asp Leu Glu Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu			
290	295	300	
Ser Thr Thr Gly Asp Arg Gly Gln Thr Pro Ser Pro Pro Ser Leu			
305	310	315	
<210> 45			
<211> 1395			
<212> DNA			
<213> Hepatitis C virus			
<220>			
<221> CDS			
<222> 1..1392			
<220>			
<221> mat_peptide			
<222> 1..1389			
<400> 45			
atg gtg gcg ggg gcc cat tgg gga gtc ctg gcg ggc ctc gcc tac tat			48
Met Val Ala Gly Ala His Trp Gly Val Leu Ala Gly Leu Ala Tyr Tyr			
1 5 10 15			
tcc atg gtg ggg aac tgg gct aag gtt ttg gtt gtg atg cta ctc ttt			96
Ser Met Val Gly Asn Trp Ala Lys Val Leu Val Val Met Leu Leu Phe			
20 25 30			
gcc ggc gtc gac ggg cat acc cgc gtg tca gga ggg gca gca gcc tcc			144
Ala Gly Val Asp Gly His Thr Arg Val Ser Gly Gly Ala Ala Ala Ser			
35 40 45			
gat acc agg ggc ctt gtg tcc ctc ttt agc ccc ggg tcg gct cag aaa			192
Asp Thr Arg Gly Leu Val Ser Leu Phe Ser Pro Gly Ser Ala Gln Lys			
50 55 60			
atc cag ctc gta aac acc aac ggc agt tgg cac atc aac agg act gcc			240
Ile Gln Leu Val Asn Thr Asn Gly Ser Trp His Ile Asn Arg Thr Ala			
65 70 75 80			
ctg aac tgc aac gac tcc ctc caa aca ggg ttc ttt gcc gca cta ttc			288
Leu Asn Cys Asn Asp Ser Leu Gln Thr Gly Phe Phe Ala Ala Leu Phe			
85 90 95			
tac aaa cac aaa ttc aac tcg tct gga tgc cca gag cgc ttg gcc agc			336
Tyr Lys His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser			
100 105 110			
tgt cgc tcc atc gac aag ttc gct cag ggg tgg ggt ccc ctc act tac			384
Cys Arg Ser Ile Asp Lys Phe Ala Gln Gly Trp Gly Pro Leu Thr Tyr			
115 120 125			
act gag cct aac agc tcg gac cag agg ccc tac tgc tgg cac tac gcg			432
Thr Glu Pro Asn Ser Ser Asp Gln Arg Pro Tyr Cys Trp His Tyr Ala			
130 135 140			
cct cga ccg tgt ggt att gta ccc gcg tct cag gtg tgc ggt cca gtg			480
Pro Arg Pro Cys Gly Ile Val Pro Ala Ser Gln Val Cys Gly Pro Val			
145 150 155 160			



tat tgc ttc acc ccg agc cct gtt gtg gtg ggg acg acc gat cgg ttt	528
Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Phe	
165 170 175	
ggg gtc ccc acg tat aac tgg ggg gcg aac gac tcg gat gtg ctg att	576
Gly Val Pro Thr Tyr Asn Trp Gly Ala Asn Asp Ser Asp Val Leu Ile	
180 185 190	
ctc aac aac acg ccg ccg ccg cga ggc aac tgg ttc ggc tgt aca tgg	624
Leu Asn Asn Thr Arg Pro Pro Arg Gly Asn Trp Phe Gly Cys Thr Trp	
195 200 205	
atg aat ggc act ggg ttc acc aag acg tgt ggg ggc ccc ccg tgc aac	672
Met Asn Gly Thr Gly Phe Thr Lys Thr Cys Gly Gly Pro Pro Cys Asn	
210 215 220	
atc ggg ggg gcc ggc aac aac acc ttg acc tgc ccc act gac tgt ttt	720
Ile Gly Gly Ala Gly Asn Asn Thr Leu Thr Cys Pro Thr Asp Cys Phe	
225 230 235 240	
cgg aag cac ccc gag gcc acc tac gcc aga tgc ggt tct ggg ccc tgg	768
Arg Lys His Pro Glu Ala Thr Tyr Ala Arg Cys Gly Ser Gly Pro Trp	
245 250 255	
ctg aca cct agg tgt atg gtt cat tac cca tat agg ctc tgg cac tac	816
Leu Thr Pro Arg Cys Met Val His Tyr Pro Tyr Arg Leu Trp His Tyr	
260 265 270	
ccc tgc act gtc aac ttc acc atc ttc aag gtt agg atg tac gtg ggg	864
Pro Cys Thr Val Asn Phe Thr Ile Phe Lys Val Arg Met Tyr Val Gly	
275 280 285	
ggc gtg gag cac agg ttc gaa gcc gca tgc aat tgg act cga gga gag	912
Gly Val Glu His Arg Phe Glu Ala Ala Cys Asn Trp Thr Arg Gly Glu	
290 295 300	
cgt tgt gac ttg gag gac agg gat aga tca gag ctt agc ccg ctg ctg	960
Arg Cys Asp Leu Glu Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu	
305 310 315 320	
ctg tct aca aca gag tgg cag ata ctg ccc tgt tcc ttc acc acc ctg	1008
Leu Ser Thr Thr Glu Trp Gln Ile Leu Pro Cys Ser Phe Thr Thr Leu	
325 330 335	
ccg gcc cta tcc acc ggc ctg atc cac ctc cat cag aac atc gtg gac	1056
Pro Ala Leu Ser Thr Gly Leu Ile His Leu His Gln Asn Ile Val Asp	
340 345 350	
gtg caa tac ctg tac ggt gta ggg tcg gcg gtt gtc tcc ctt gtc atc	1104
Val Gln Tyr Leu Tyr Gly Val Gly Ser Ala Val Val Ser Leu Val Ile	
355 360 365	
aaa tgg gag tat gtc ctg ttg ctc ttc ctt ctc ctg gca gac gcg cgc	1152
Lys Trp Glu Tyr Val Leu Leu Phe Leu Leu Ala Asp Ala Arg	
370 375 380	
atc tgc gcc tgc tta tgg atg atg ctg ctg ata gct caa gct gag gcc	1200
Ile Cys Ala Cys Leu Trp Met Met Leu Leu Ile Ala Gln Ala Glu Ala	
385 390 395 400	
gcc tta gag aac ctg gtg gtc ctc aat gcg gcg gcc gtg gcc ggg gcg	1248
Ala Leu Glu Asn Leu Val Val Leu Asn Ala Ala Val Ala Gly Ala	

```

      405              410              415
cat ggc act ctt tcc ttc ctt gtg ttc ttc tgt gct gcc tgg tac atc      1296
His Gly Thr Leu Ser Phe Leu Val Phe Phe Cys Ala Ala Trp Tyr Ile
      420              425              430

aag ggc agg ctg gtc cct ggt gcg gca tac gcc ttc tat ggc gtg tgg      1344
Lys Gly Arg Leu Val Pro Gly Ala Ala Tyr Ala Phe Tyr Gly Val Trp
      435              440              445

ccg ctg ctc ctg ctt ctg ctg gcc tta cca cca cga gct tat gcc tagtaa      1395
Pro Leu Leu Leu Leu Leu Leu Ala Leu Pro Pro Arg Ala Tyr Ala
      450              455              460
<210> 46

<211> 463
<212> PRT
<213> Hepatitis C virus

<400> 46

Met Val Ala Gly Ala His Trp Gly Val Leu Ala Gly Leu Ala Tyr Tyr
  1              5              10              15

Ser Met Val Gly Asn Trp Ala Lys Val Leu Val Val Met Leu Leu Phe
      20              25              30
Ala Gly Val Asp Gly His Thr Arg Val Ser Gly Gly Ala Ala Ala Ser
      35              40              45

Asp Thr Arg Gly Leu Val Ser Leu Phe Ser Pro Gly Ser Ala Gln Lys
      50              55              60

Ile Gln Leu Val Asn Thr Asn Gly Ser Trp His Ile Asn Arg Thr Ala
      65              70              75              80

Leu Asn Cys Asn Asp Ser Leu Gln Thr Gly Phe Phe Ala Ala Leu Phe
      85              90              95

Tyr Lys His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser
      100              105              110

Cys Arg Ser Ile Asp Lys Phe Ala Gln Gly Trp Gly Pro Leu Thr Tyr
      115              120              125

Thr Glu Pro Asn Ser Ser Asp Gln Arg Pro Tyr Cys Trp His Tyr Ala
      130              135              140

Pro Arg Pro Cys Gly Ile Val Pro Ala Ser Gln Val Cys Gly Pro Val
      145              150              155              160

Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Phe
      165              170              175

Gly Val Pro Thr Tyr Asn Trp Gly Ala Asn Asp Ser Asp Val Leu Ile
      180              185              190

Leu Asn Asn Thr Arg Pro Pro Arg Gly Asn Trp Phe Gly Cys Thr Trp
      195              200              205

Met Asn Gly Thr Gly Phe Thr Lys Thr Cys Gly Gly Pro Pro Cys Asn
      210              215              220

```

Ile Gly Gly Ala Gly Asn Asn Thr Leu Thr Cys Pro Thr Asp Cys Phe  
 225 230 235 240  
 Arg Lys His Pro Glu Ala Thr Tyr Ala Arg Cys Gly Ser Gly Pro Trp  
 245 250 255  
 Leu Thr Pro Arg Cys Met Val His Tyr Pro Tyr Arg Leu Trp His Tyr  
 260 265 270  
 Pro Cys Thr Val Asn Phe Thr Ile Phe Lys Val Arg Met Tyr Val Gly  
 275 280 285  
 Gly Val Glu His Arg Phe Glu Ala Ala Cys Asn Trp Thr Arg Gly Glu  
 290 295 300  
 Arg Cys Asp Leu Glu Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu  
 305 310 315 320  
 Leu Ser Thr Thr Glu Trp Gln Ile Leu Pro Cys Ser Phe Thr Thr Leu  
 325 330 335  
 Pro Ala Leu Ser Thr Gly Leu Ile His Leu His Gln Asn Ile Val Asp  
 340 345 350  
 Val Gln Tyr Leu Tyr Gly Val Gly Ser Ala Val Val Ser Leu Val Ile  
 355 360 365  
 Lys Trp Glu Tyr Val Leu Leu Leu Phe Leu Leu Leu Ala Asp Ala Arg  
 370 375 380  
 Ile Cys Ala Cys Leu Trp Met Met Leu Leu Ile Ala Gln Ala Glu Ala  
 385 390 395 400  
 Ala Leu Glu Asn Leu Val Val Leu Asn Ala Ala Ala Val Ala Gly Ala  
 405 410 415  
 His Gly Thr Leu Ser Phe Leu Val Phe Phe Cys Ala Ala Trp Tyr Ile  
 420 425 430  
 Lys Gly Arg Leu Val Pro Gly Ala Ala Tyr Ala Phe Tyr Gly Val Trp  
 435 440 445  
 Pro Leu Leu Leu Leu Leu Leu Ala Leu Pro Pro Arg Ala Tyr Ala  
 450 455 460

<210> 47

<211> 2082

<212> DNA

<213> Hepatitis C virus

<220>

<221> CDS

<222> 1..2079

<220>

<221> mat\_peptide

<222> 1..2076

<400> 47

aat ttg ggt aag gtc atc gat acc ctt aca tgc ggc ttc gcc gac ctc  
 Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu

1	5	10	15	
gtg ggg tac att ccg ctc gtc ggc gcc ccc cta ggg ggc gct gcc agg				96
Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg	20	25	30	
gcc ctg gcg cat ggc gtc cgg gtt ctg gag gac ggc gtg aac tat gca				144
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala	35	40	45	
aca ggg aat ttg ccc ggt tgc tct ttc tct atc ttc ctc ttg gct ttg				192
Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu	50	55	60	
ctg tcc tgt ctg acc gtt cca gct tcc gct tat gaa gtg cgc aac gtg				240
Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Glu Val Arg Asn Val	65	70	75	80
tcc ggg atg tac cat gtc acg aac gac tgc tcc aac tca agc att gtg				288
Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser Asn Ser Ser Ile Val	85	90	95	
tat gag gca gcg gac atg atc atg cac acc ccc ggg tgc gtg ccc tgc				336
Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys	100	105	110	
gtt cgg gag aac aac tct tcc cgc tgc tgg gta gcg ctc acc ccc acg				384
Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu Thr Pro Thr	115	120	125	
ctc gca gct agg aac gcc agc gtc ccc acc acg aca ata cga cgc cac				432
Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr Ile Arg Arg His	130	135	140	
gtc gat ttg ctc gtt ggg gcg gct gct ttc tgt tcc gct atg tac gtg				480
Val Asp Leu Leu Val Gly Ala Ala Phe Cys Ser Ala Met Tyr Val	145	150	155	160
ggg gac ctc tgc gga tct gtc ttc ctc gtc tcc cag ctg ttc acc atc				528
Gly Asp Leu Cys Gly Ser Val Phe Leu Val Ser Gln Leu Phe Thr Ile	165	170	175	
tcg cct cgc cgg cat gag acg gtg cag gac tgc aat tgc tca atc tat				576
Ser Pro Arg Arg His Glu Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr	180	185	190	
ccc ggc cac ata acg ggt cac cgt atg gct tgg gat atg atg atg aac				624
Pro Gly His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn	195	200	205	
tgg tcg cct aca acg gcc ctg gtg gta tcg cag ctg ctc cgg atc cca				672
Trp Ser Pro Thr Thr Ala Leu Val Val Ser Gln Leu Leu Arg Ile Pro	210	215	220	
caa gct gtc gtg gac atg gtg gcg ggg gcc cat tgg gga gtc ctg gcg				720
Gln Ala Val Val Asp Met Val Ala Gly Ala His Trp Gly Val Leu Ala	225	230	235	240
ggc ctc gcc tac tat tcc atg gtg ggg aac tgg gct aag gtt ttg gtt				768
Gly Leu Ala Tyr Tyr Ser Met Val Gly Asn Trp Ala Lys Val Leu Val	245	250	255	
gtg atg cta ctc ttt gcc ggc gtc gac ggg cat acc cgc gtg tca gga				816

Val Met Leu Leu Phe Ala Gly Val Asp Gly His Thr Arg Val Ser Gly	
260 265 270	
ggg gca gca gcc tcc gat acc agg ggc ctt gtg tcc ctc ttt agc ccc	864
Gly Ala Ala Ala Ser Asp Thr Arg Gly Leu Val Ser Leu Phe Ser Pro	
275 280 285	
ggg tcg gct cag aaa atc cag ctc gta aac acc aac ggc agt tgg cac	912
Gly Ser Ala Gln Lys Ile Gln Leu Val Asn Thr Asn Gly Ser Trp His	
290 295 300	
atc aac agg act gcc ctg aac tgc aac gac tcc ctc caa aca ggg ttc	960
Ile Asn Arg Thr Ala Leu Asn Cys Asn Asp Ser Leu Gln Thr Gly Phe	
305 310 315 320	
ttt gcc gca cta ttc tac aaa cac aaa ttc aac tcg tct gga tgc cca	1008
Phe Ala Ala Leu Phe Tyr Lys His Lys Phe Asn Ser Ser Gly Cys Pro	
325 330 335	
gag cgc ttg gcc agc tgt cgc tcc atc gac aag ttc gct cag ggg tgg	1056
Glu Arg Leu Ala Ser Cys Arg Ser Ile Asp Lys Phe Ala Gln Gly Trp	
340 345 350	
ggg ccc ctc act tac act gag cct aac agc tcg gac cag agg ccc tac	1104
Gly Pro Leu Thr Tyr Thr Glu Pro Asn Ser Ser Asp Gln Arg Pro Tyr	
355 360 365	
tgc tgg cac tac gcg cct cga ccg tgt ggt att gta ccc gcg tct cag	1152
Cys Trp His Tyr Ala Pro Arg Pro Cys Gly Ile Val Pro Ala Ser Gln	
370 375 380	
gtg tgc ggt cca gtg tat tgc ttc acc ccg agc cct gtt gtg gtg ggg	1200
Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly	
385 390 395 400	
acg acc gat ccg ttt ggt gtc ccc acg tat aac tgg ggg gcg aac gac	1248
Thr Thr Asp Arg Phe Gly Val Pro Thr Tyr Asn Trp Gly Ala Asn Asp	
405 410 415	
tcg gat gtg ctg att ctc aac aac acg ccg ccg ccg cga ggc aac tgg	1296
Ser Asp Val Leu Ile Leu Asn Asn Thr Arg Pro Pro Arg Gly Asn Trp	
420 425 430	
ttc ggc tgt aca tgg atg aat ggc act ggg ttc acc aag acg tgt ggg	1344
Phe Gly Cys Thr Trp Met Asn Gly Thr Gly Phe Thr Lys Thr Cys Gly	
435 440 445	
ggc ccc ccg tgc aac atc ggg ggg gcc ggc aac aac acc ttg acc tgc	1392
Gly Pro Pro Cys Asn Ile Gly Gly Ala Gly Asn Asn Thr Leu Thr Cys	
450 455 460	
ccc act gac tgt ttt ccg aag cac ccc gag gcc acc tac gcc aga tgc	1440
Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala Thr Tyr Ala Arg Cys	
465 470 475 480	
ggg tct ggg ccc tgg ctg aca cct agg tgt atg gtt cat tac cca tat	1488
Gly Ser Gly Pro Trp Leu Thr Pro Arg Cys Met Val His Tyr Pro Tyr	
485 490 495	
agg ctc tgg cac tac ccc tgc act gtc aac ttc acc atc ttc aag gtt	1536
Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe Thr Ile Phe Lys Val	
500 505 510	
agg atg tac gtg ggg ggc gtg gag cac agg ttc gaa gcc gca tgc aat	1584

Arg Met Tyr Val Gly Gly Val Glu His Arg Phe Glu Ala Ala Cys Asn	
515 520 525	
tgg act cga gga gag cgt tgt gac ttg gag gac agg gat aga tca gag	1632
Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu Asp Arg Asp Arg Ser Glu	
530 535 540	
ctt agc ccg ctg ctg ctg tct aca aca gag tgg cag ata ctg ccc tgt	1680
Leu Ser Pro Leu Leu Leu Ser Thr Thr Glu Trp Gln Ile Leu Pro Cys	
545 550 555 560	
tcc ttc acc acc ctg ccg gcc cta tcc acc ggc ctg atc cac ctc cat	1728
Ser Phe Thr Thr Leu Pro Ala Leu Ser Thr Gly Leu Ile His Leu His	
565 570 575	
cag aac atc gtg gac gtg caa tac ctg tac ggt gta ggg tcg gcg gtt	1776
Gln Asn Ile Val Asp Val Gln Tyr Leu Tyr Gly Val Gly Ser Ala Val	
580 585 590	
gtc tcc ctt gtc atc aaa tgg gag tat gtc ctg ttg ctc ttc ctt ctc	1824
Val Ser Leu Val Ile Lys Trp Glu Tyr Val Leu Leu Leu Phe Leu Leu	
595 600 605	
ctg gca gac gcg cgc atc tgc gcc tgc tta tgg atg atg ctg ctg ata	1872
Leu Ala Asp Ala Arg Ile Cys Ala Cys Leu Trp Met Met Leu Leu Ile	
610 615 620	
gct caa gct gag gcc gcc tta gag aac ctg gtg gtc ctc aat gcg gcg	1920
Ala Gln Ala Glu Ala Ala Leu Glu Asn Leu Val Val Leu Asn Ala Ala	
625 630 635 640	
gcc gtg gcc ggg gcg cat ggc act ctt tcc ttc ctt gtg ttc ttc tgt	1968
Ala Val Ala Gly Ala His Gly Thr Leu Ser Phe Leu Val Phe Phe Cys	
645 650 655	
gct gcc tgg tac atc aag ggc agg ctg gtc cct ggt gcg gca tac gcc	2016
Ala Ala Trp Tyr Ile Lys Gly Arg Leu Val Pro Gly Ala Ala Tyr Ala	
660 665 670	
ttc tat ggc gtg tgg ccg ctg ctc ctg ctt ctg ctg gcc tta cca cca	2064
Phe Tyr Gly Val Trp Pro Leu Leu Leu Leu Ala Leu Pro Pro	
675 680 685	
cga gct tat gcc tagtaa	2082
Arg Ala Tyr Ala	
690	

&lt;210&gt; 48

&lt;211&gt; 692

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 48

Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu
1 5 10 15
Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg
20 25 30
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala

35					40					45					
Thr	Gly	Asn	Leu	Pro	Gly	Cys	Ser	Phe	Ser	Ile	Phe	Leu	Leu	Ala	Leu
	50					55					60				
Leu	Ser	Cys	Leu	Thr	Val	Pro	Ala	Ser	Ala	Tyr	Glu	Val	Arg	Asn	Val
65					70					75					80
Ser	Gly	Met	Tyr	His	Val	Thr	Asn	Asp	Cys	Ser	Asn	Ser	Ser	Ile	Val
				85					90					95	
Tyr	Glu	Ala	Ala	Asp	Met	Ile	Met	His	Thr	Pro	Gly	Cys	Val	Pro	Cys
		100						105					110		
Val	Arg	Glu	Asn	Asn	Ser	Ser	Arg	Cys	Trp	Val	Ala	Leu	Thr	Pro	Thr
		115					120						125		
Leu	Ala	Ala	Arg	Asn	Ala	Ser	Val	Pro	Thr	Thr	Thr	Ile	Arg	Arg	His
	130						135					140			
Val	Asp	Leu	Leu	Val	Gly	Ala	Ala	Ala	Phe	Cys	Ser	Ala	Met	Tyr	Val
145					150					155					160
Gly	Asp	Leu	Cys	Gly	Ser	Val	Phe	Leu	Val	Ser	Gln	Leu	Phe	Thr	Ile
				165					170					175	
Ser	Pro	Arg	Arg	His	Glu	Thr	Val	Gln	Asp	Cys	Asn	Cys	Ser	Ile	Tyr
			180					185					190		
Pro	Gly	His	Ile	Thr	Gly	His	Arg	Met	Ala	Trp	Asp	Met	Met	Met	Asn
		195					200					205			
Trp	Ser	Pro	Thr	Thr	Ala	Leu	Val	Val	Ser	Gln	Leu	Leu	Arg	Ile	Pro
	210					215					220				
Gln	Ala	Val	Val	Asp	Met	Val	Ala	Gly	Ala	His	Trp	Gly	Val	Leu	Ala
225					230					235					240
Gly	Leu	Ala	Tyr	Tyr	Ser	Met	Val	Gly	Asn	Trp	Ala	Lys	Val	Leu	Val
				245					250					255	
Val	Met	Leu	Leu	Phe	Ala	Gly	Val	Asp	Gly	His	Thr	Arg	Val	Ser	Gly
		260						265					270		
Gly	Ala	Ala	Ala	Ser	Asp	Thr	Arg	Gly	Leu	Val	Ser	Leu	Phe	Ser	Pro
		275					280					285			
Gly	Ser	Ala	Gln	Lys	Ile	Gln	Leu	Val	Asn	Thr	Asn	Gly	Ser	Trp	His
	290					295					300				
Ile	Asn	Arg	Thr	Ala	Leu	Asn	Cys	Asn	Asp	Ser	Leu	Gln	Thr	Gly	Phe
305					310					315					320
Phe	Ala	Ala	Leu	Phe	Tyr	Lys	His	Lys	Phe	Asn	Ser	Ser	Gly	Cys	Pro
				325					330					335	
Glu	Arg	Leu	Ala	Ser	Cys	Arg	Ser	Ile	Asp	Lys	Phe	Ala	Gln	Gly	Trp
		340						345					350		
Gly	Pro	Leu	Thr	Tyr	Thr	Glu	Pro	Asn	Ser	Ser	Asp	Gln	Arg	Pro	Tyr
	355						360					365			
Cys	Trp	His	Tyr	Ala	Pro	Arg	Pro	Cys	Gly	Ile	Val	Pro	Ala	Ser	Gln
	370					375					380				

Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly  
 385 390 395 400  
 Thr Thr Asp Arg Phe Gly Val Pro Thr Tyr Asn Trp Gly Ala Asn Asp  
 405 410 415  
 Ser Asp Val Leu Ile Leu Asn Asn Thr Arg Pro Pro Arg Gly Asn Trp  
 420 425 430  
 Phe Gly Cys Thr Trp Met Asn Gly Thr Gly Phe Thr Lys Thr Cys Gly  
 435 440 445  
 Gly Pro Pro Cys Asn Ile Gly Gly Ala Gly Asn Asn Thr Leu Thr Cys  
 450 455 460  
 Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala Thr Tyr Ala Arg Cys  
 465 470 475 480  
 Gly Ser Gly Pro Trp Leu Thr Pro Arg Cys Met Val His Tyr Pro Tyr  
 485 490 495  
 Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe Thr Ile Phe Lys Val  
 500 505 510  
 Arg Met Tyr Val Gly Gly Val Glu His Arg Phe Glu Ala Ala Cys Asn  
 515 520 525  
 Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu Asp Arg Asp Arg Ser Glu  
 530 535 540  
 Leu Ser Pro Leu Leu Leu Ser Thr Thr Glu Trp Gln Ile Leu Pro Cys  
 545 550 555 560  
 Ser Phe Thr Thr Leu Pro Ala Leu Ser Thr Gly Leu Ile His Leu His  
 565 570 575  
 Gln Asn Ile Val Asp Val Gln Tyr Leu Tyr Gly Val Gly Ser Ala Val  
 580 585 590  
 Val Ser Leu Val Ile Lys Trp Glu Tyr Val Leu Leu Leu Phe Leu Leu  
 595 600 605  
 Leu Ala Asp Ala Arg Ile Cys Ala Cys Leu Trp Met Met Leu Leu Ile  
 610 615 620  
 Ala Gln Ala Glu Ala Ala Leu Glu Asn Leu Val Val Leu Asn Ala Ala  
 625 630 635 640  
 Ala Val Ala Gly Ala His Gly Thr Leu Ser Phe Leu Val Phe Phe Cys  
 645 650 655  
 Ala Ala Trp Tyr Ile Lys Gly Arg Leu Val Pro Gly Ala Ala Tyr Ala  
 660 665 670  
 Phe Tyr Gly Val Trp Pro Leu Leu Leu Leu Leu Ala Leu Pro Pro  
 675 680 685  
 Arg Ala Tyr Ala  
 690



<211> 2433  
 <212> DNA  
 <213> Hepatitis C virus

<220>  
 <221> CDS  
 <222> 1..2430

<220>  
 <221> mat\_peptide  
 <222> 1..2427

<400> 49

atg agc acg aat cct aaa cct caa aga aaa acc aaa cgt aac acc aac	48
Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn	
1 5 10 15	
cgc cgc cca cag gac gtc aag ttc ccg ggc ggt ggt cag atc gtt ggt	96
Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly	
20 25 30	
gga gtt tac ctg ttg ccg cgc agg ggc ccc agg ttg ggt gtg cgc gcg	144
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala	
35 40 45	
act agg aag act tcc gag cgg tcg caa cct cgt ggg agg cga caa cct	192
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro	
50 55 60	
atc ccc aag gct cgc cga ccc gag ggt agg gcc tgg gct cag ccc ggg	240
Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Ala Trp Ala Gln Pro Gly	
65 70 75 80	
tac cct tgg ccc ctg tat ggc aat gag ggc atg ggg tgg gca gga tgg	288
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Met Gly Trp Ala Gly Trp	
85 90 95	
ctc ctg tca ccc cgc ggc tct cgg cct agt tgg ggc cct aca gac ccc	336
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro	
100 105 110	
cgg cgt agg tcg cgt aat ttg ggt aag gtc atc gat acc ctt aca tgc	384
Arg Arg Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys	
115 120 125	
ggc ttc gcc gac ctg gtg ggg tac att ccg ctg gtc ggc gcc ccc cta	432
Gly Phe Ala Asp Leu Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu	
130 135 140	
ggg ggc gct gcc agg gcc ctg gcg cat ggc gtc cgg gtt ctg gag gac	480
Gly Gly Ala Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp	
145 150 155 160	
ggc gtg aac tat gca aca ggg aat ttg ccc ggt tgc tct ttc tct atc	528
Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile	
165 170 175	
ttc ctg ttg gct ttg ctg tcc tgt ctg acc gtt cca gct tcc gct tat	576
Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr	
180 185 190	
gaa gtg cgc aac gtg tcc ggg atg tac cat gtc acg aac gac tgc tcc	624

Glu	Val	Arg	Asn	Val	Ser	Gly	Met	Tyr	His	Val	Thr	Asn	Asp	Cys	Ser		
		195					200					205					
aac	tca	agc	att	gtg	tat	gag	gca	gcg	gac	atg	atc	atg	cac	acc	ccc	672	
Asn	Ser	Ser	Ile	Val	Tyr	Glu	Ala	Ala	Asp	Met	Ile	Met	His	Thr	Pro		
	210					215					220						
ggg	tgc	gtg	ccc	tgc	gtt	cgg	gag	aac	aac	tct	tcc	cgc	tgc	tgg	gta	720	
Gly	Cys	Val	Pro	Cys	Val	Arg	Glu	Asn	Asn		Ser	Ser	Arg	Cys	Trp	Val	
225					230					235					240		
gcg	ctc	acc	ccc	acg	ctc	gca	gct	agg	aac	gcc	agc	gtc	ccc	acc	acg	768	
Ala	Leu	Thr	Pro	Thr	Leu	Ala	Ala	Arg	Asn	Ala	Ser	Val	Pro	Thr	Thr		
				245					250					255			
aca	ata	cga	cgc	cac	gtc	gat	ttg	ctc	gtt	ggg	gcg	gct	gct	ttc	tgt	816	
Thr	Ile	Arg	Arg	His	Val	Asp	Leu	Leu	Val	Gly	Ala	Ala	Ala	Phe	Cys		
			260					265					270				
tcc	gct	atg	tac	gtg	ggg	gac	ctc	tgc	gga	tct	gtc	ttc	ctc	gtc	tcc	864	
Ser	Ala	Met	Tyr	Val	Gly	Asp	Leu	Cys	Gly	Ser	Val	Phe	Leu	Val	Ser		
	275						280					285					
cag	ctg	ttc	acc	atc	tcg	cct	cgc	cgg	cat	gag	acg	gtg	cag	gac	tgc	912	
Gln	Leu	Phe	Thr	Ile	Ser	Pro	Arg	Arg	His	Glu	Thr	Val	Gln	Asp	Cys		
	290					295						300					
aat	tgc	tca	atc	tat	ccc	ggc	cac	ata	acg	ggt	cac	cgt	atg	gct	tgg	960	
Asn	Cys	Ser	Ile	Tyr	Pro	Gly	His	Ile	Thr	Gly	His	Arg	Met	Ala	Trp		
305					310					315				320			
gat	atg	atg	atg	aac	tgg	tcg	cct	aca	acg	gcc	ctg	gtg	gta	tcg	cag	1008	
Asp	Met	Met	Met	Asn	Trp	Ser	Pro	Thr	Thr	Ala	Leu	Val	Val	Ser	Gln		
				325					330					335			
ctg	ctc	cgg	atc	cca	caa	gct	gtc	gtg	gac	atg	gtg	gcg	ggg	gcc	cat	1056	
Leu	Leu	Arg	Ile	Pro	Gln	Ala	Val	Val	Asp	Met	Val	Ala	Gly	Ala	His		
			340					345					350				
tgg	gga	gtc	ctg	gcg	ggc	ctc	gcc	tac	tat	tcc	atg	gtg	ggg	aac	tgg	1104	
Trp	Gly	Val	Leu	Ala	Gly	Leu	Ala	Tyr	Tyr	Ser	Met	Val	Gly	Asn	Trp		
	355					360						365					
gct	aag	gtt	ttg	gtt	gtg	atg	cta	ctc	ttt	gcc	ggc	gtc	gac	ggg	cat	1152	
Ala	Lys	Val	Leu	Val	Val	Met	Leu	Leu	Phe	Ala	Gly	Val	Asp	Gly	His		
	370					375					380						
acc	cgc	gtg	tca	gga	ggg	gca	gca	gcc	tcc	gat	acc	agg	ggc	ctt	gtg	1200	
Thr	Arg	Val	Ser	Gly	Gly	Ala	Ala	Ala	Ser	Asp	Thr	Arg	Gly	Leu	Val		
385					390					395				400			
tcc	ctc	ttt	agc	ccc	ggg	tcg	gct	cag	aaa	atc	cag	ctc	gta	aac	acc	1248	
Ser	Leu	Phe	Ser	Pro	Gly	Ser	Ala	Gln	Lys	Ile	Gln	Leu	Val	Asn	Thr		
				405					410					415			
aac	ggc	agt	tgg	cac	atc	aac	agg	act	gcc	ctg	aac	tgc	aac	gac	tcc	1296	
Asn	Gly	Ser	Trp	His	Ile	Asn	Arg	Thr	Ala	Leu	Asn	Cys	Asn	Asp	Ser		
			420					425					430				
ctc	caa	aca	ggg	ttc	ttt	gcc	gca	cta	ttc	tac	aaa	cac	aaa	ttc	aac	1344	
Leu	Gln	Thr	Gly	Phe	Phe	Ala	Ala	Leu	Phe	Tyr	Lys	His	Lys	Phe	Asn		
		435					440					445					

tcg tct gga tgc cca gag cgc ttg gcc agc tgt cgc tcc atc gac aag Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys Arg Ser Ile Asp Lys 450 455 460	1392
ttc gct cag ggg tgg ggt ccc ctc act tac act gag cct aac agc tcg Phe Ala Gln Gly Trp Gly Pro Leu Thr Tyr Thr Glu Pro Asn Ser Ser 465 470 475 480	1440
gac cag agg ccc tac tgc tgg cac tac gcg cct cga ccg tgt ggt att Asp Gln Arg Pro Tyr Cys Trp His Tyr Ala Pro Arg Pro Cys Gly Ile 485 490 495	1488
gta ccc gcg tct cag gtg tgc ggt cca gtg tat tgc ttc acc ccg agc Val Pro Ala Ser Gln Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser 500 505 510	1536
cct gtt gtg gtg ggg acg acc gat cgg ttt ggt gtc ccc acg tat aac Pro Val Val Val Gly Thr Thr Asp Arg Phe Gly Val Pro Thr Tyr Asn 515 520 525	1584
tgg ggg gcg aac gac tcg gat gtg ctg att ctc aac aac acg cgg ccg Trp Gly Ala Asn Asp Ser Asp Val Leu Ile Leu Asn Asn Thr Arg Pro 530 535 540	1632
ccg cga ggc aac tgg ttc ggc tgt aca tgg atg aat ggc act ggg ttc Pro Arg Gly Asn Trp Phe Gly Cys Thr Trp Met Asn Gly Thr Gly Phe 545 550 555 560	1680
acc aag acg tgt ggg ggc ccc ccg tgc aac atc ggg ggg gcc ggc aac Thr Lys Thr Cys Gly Gly Pro Pro Cys Asn Ile Gly Gly Ala Gly Asn 565 570 575	1728
aac acc ttg acc tgc ccc act gac tgt ttt cgg aag cac ccc gag gcc Asn Thr Leu Thr Cys Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala 580 585 590	1776
acc tac gcc aga tgc ggt tct ggg ccc tgg ctg aca cct agg tgt atg Thr Tyr Ala Arg Cys Gly Ser Gly Pro Trp Leu Thr Pro Arg Cys Met 595 600 605	1824
gtt cat tac cca tat agg ctc tgg cac tac ccc tgc act gtc aac ttc Val His Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe 610 615 620	1872
acc atc ttc aag gtt agg atg tac gtg ggg ggc gtg gag cac agg ttc Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg Phe 625 630 635 640	1920
gaa gcc gca tgc aat tgg act cga gga gag cgt tgt gac ttg gag gac Glu Ala Ala Cys Asn Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu Asp 645 650 655	1968
agg gat aga tca gag ctt agc ccg ctg ctg ctg tct aca aca gag tgg Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu Ser Thr Thr Glu Trp 660 665 670	2016
cag ata ctg ccc tgt tcc ttc acc acc ctg ccg gcc cta tcc acc ggc Gln Ile Leu Pro Cys Ser Phe Thr Thr Leu Pro Ala Leu Ser Thr Gly 675 680 685	2064
ctg atc cac ctc cat cag aac atc gtg gac gtg caa tac ctg tac ggt Leu Ile His Leu His Gln Asn Ile Val Asp Val Gln Tyr Leu Tyr Gly 690 695 700	2112

gta ggg tgc gcg gtt gtc tcc ctt gtc atc aaa tgg gag tat gtc ctg 2160  
 Val Gly Ser Ala Val Val Ser Leu Val Ile Lys Trp Glu Tyr Val Leu  
 705 710 715 720  
 ttg ctc ttc ctt ctc ctg gca gac gcg cgc atc tgc gcc tgc tta tgg 2208  
 Leu Leu Phe Leu Leu Leu Ala Asp Ala Arg Ile Cys Ala Cys Leu Trp  
 725 730 735  
 atg atg ctg ctg ata gct caa gct gag gcc gcc tta gag aac ctg gtg 2256  
 Met Met Leu Leu Ile Ala Gln Ala Glu Ala Ala Leu Glu Asn Leu Val  
 740 745 750  
 gtc ctc aat gcg gcg gcc gtg gcc ggg gcg cat ggc act ctt tcc ttc 2304  
 Val Leu Asn Ala Ala Ala Val Ala Gly Ala His Gly Thr Leu Ser Phe  
 755 760 765  
 ctt gtg ttc ttc tgt gct gcc tgg tac atc aag ggc agg ctg gtc cct 2352  
 Leu Val Phe Phe Cys Ala Ala Trp Tyr Ile Lys Gly Arg Leu Val Pro  
 770 775 780  
 ggt gcg gca tac gcc ttc tat ggc gtg tgg ccg ctg ctc ctg ctt ctg 2400  
 Gly Ala Ala Tyr Ala Phe Tyr Gly Val Trp Pro Leu Leu Leu Leu Leu  
 785 790 795 800  
 ctg gcc tta cca cca cga gct tat gcc tagtaa 2433  
 Leu Ala Leu Pro Pro Arg Ala Tyr Ala  
 805

<210> 50

<211> 809

<212> PRT

<213> Hepatitis C virus

<400> 50

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn  
 1 5 10 15  
 Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly  
 20 25 30  
 Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala  
 35 40 45  
 Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro  
 50 55 60  
 Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Ala Trp Ala Gln Pro Gly  
 65 70 75 80  
 Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Met Gly Trp Ala Gly Trp  
 85 90 95  
 Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro  
 100 105 110  
 Arg Arg Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys  
 115 120 125  
 Gly Phe Ala Asp Leu Val Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu  
 130 135 140

Gly Gly Ala Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp  
 145 150 155 160  
 Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile  
 165 170 175  
 Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr  
 180 185 190  
 Glu Val Arg Asn Val Ser Gly Met Tyr His Val Thr Asn Asp Cys Ser  
 195 200 205  
 Asn Ser Ser Ile Val Tyr Glu Ala Ala Asp Met Ile Met His Thr Pro  
 210 215 220  
 Gly Cys Val Pro Cys Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val  
 225 230 235 240  
 Ala Leu Thr Pro Thr Leu Ala Ala Arg Asn Ala Ser Val Pro Thr Thr  
 245 250 255  
 Thr Ile Arg Arg His Val Asp Leu Leu Val Gly Ala Ala Ala Phe Cys  
 260 265 270  
 Ser Ala Met Tyr Val Gly Asp Leu Cys Gly Ser Val Phe Leu Val Ser  
 275 280 285  
 Gln Leu Phe Thr Ile Ser Pro Arg Arg His Glu Thr Val Gln Asp Cys  
 290 295 300  
 Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg Met Ala Trp  
 305 310 315 320  
 Asp Met Met Met Asn Trp Ser Pro Thr Thr Ala Leu Val Val Ser Gln  
 325 330 335  
 Leu Leu Arg Ile Pro Gln Ala Val Val Asp Met Val Ala Gly Ala His  
 340 345 350  
 Trp Gly Val Leu Ala Gly Leu Ala Tyr Tyr Ser Met Val Gly Asn Trp  
 355 360 365  
 Ala Lys Val Leu Val Val Met Leu Leu Phe Ala Gly Val Asp Gly His  
 370 375 380  
 Thr Arg Val Ser Gly Gly Ala Ala Ala Ser Asp Thr Arg Gly Leu Val  
 385 390 395 400  
 Ser Leu Phe Ser Pro Gly Ser Ala Gln Lys Ile Gln Leu Val Asn Thr  
 405 410 415  
 Asn Gly Ser Trp His Ile Asn Arg Thr Ala Leu Asn Cys Asn Asp Ser  
 420 425 430  
 Leu Gln Thr Gly Phe Phe Ala Ala Leu Phe Tyr Lys His Lys Phe Asn  
 435 440 445  
 Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys Arg Ser Ile Asp Lys  
 450 455 460  
 Phe Ala Gln Gly Trp Gly Pro Leu Thr Tyr Thr Glu Pro Asn Ser Ser  
 465 470 475 480

Asp Gln Arg Pro Tyr Cys Trp His Tyr Ala Pro Arg Pro Cys Gly Ile  
 485 490 495  
 Val Pro Ala Ser Gln Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser  
 500 505 510  
 Pro Val Val Val Gly Thr Thr Asp Arg Phe Gly Val Pro Thr Tyr Asn  
 515 520 525  
 Trp Gly Ala Asn Asp Ser Asp Val Leu Ile Leu Asn Asn Thr Arg Pro  
 530 535 540  
 Pro Arg Gly Asn Trp Phe Gly Cys Thr Trp Met Asn Gly Thr Gly Phe  
 545 550 555 560  
 Thr Lys Thr Cys Gly Gly Pro Pro Cys Asn Ile Gly Gly Ala Gly Asn  
 565 570 575  
 Asn Thr Leu Thr Cys Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala  
 580 585 590  
 Thr Tyr Ala Arg Cys Gly Ser Gly Pro Trp Leu Thr Pro Arg Cys Met  
 595 600 605  
 Val His Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Val Asn Phe  
 610 615 620  
 Thr Ile Phe Lys Val Arg Met Tyr Val Gly Gly Val Glu His Arg Phe  
 625 630 635 640  
 Glu Ala Ala Cys Asn Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu Asp  
 645 650 655  
 Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu Ser Thr Thr Glu Trp  
 660 665 670  
 Gln Ile Leu Pro Cys Ser Phe Thr Thr Leu Pro Ala Leu Ser Thr Gly  
 675 680 685  
 Leu Ile His Leu His Gln Asn Ile Val Asp Val Gln Tyr Leu Tyr Gly  
 690 695 700  
 Val Gly Ser Ala Val Val Ser Leu Val Ile Lys Trp Glu Tyr Val Leu  
 705 710 715 720  
 Leu Leu Phe Leu Leu Leu Ala Asp Ala Arg Ile Cys Ala Cys Leu Trp  
 725 730 735  
 Met Met Leu Leu Ile Ala Gln Ala Glu Ala Ala Leu Glu Asn Leu Val  
 740 745 750  
 Val Leu Asn Ala Ala Ala Val Ala Gly Ala His Gly Thr Leu Ser Phe  
 755 760 765  
 Leu Val Phe Phe Cys Ala Ala Trp Tyr Ile Lys Gly Arg Leu Val Pro  
 770 775 780  
 Gly Ala Ala Tyr Ala Phe Tyr Gly Val Trp Pro Leu Leu Leu Leu Leu  
 785 790 795 800  
 Leu Ala Leu Pro Pro Arg Ala Tyr Ala  
 805

<210> 51

<211> 17

<212> PRT

<213> Hepatitis C virus

<400> 51

Ser Asn Ser Ser Glu Ala Ala Asp Met Ile Met His Thr Pro Gly Cys  
1 5 10 15

Val

<210> 52

<211> 22

<212> PRT

<213> Hepatitis C virus

<400> 52

Gly Gly Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp  
1 5 10 15

Ser Pro Thr Thr Ala Leu  
20

<210> 53

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 53

Tyr Glu Val Arg Asn Val Ser Gly Ile Tyr His Val Thr Asn Asp Cys  
1 5 10 15

Ser Asn Ser Ser Ile Val Tyr Glu Ala Ala Asp Met Ile Met His Thr  
20 25 30

Pro Gly Cys Gly Lys  
35

<210> 54

<211> 25

<212> PRT

<213> Hepatitis C virus

<400> 54

Gly Gly Thr Pro Thr Val Ala Thr Arg Asp Gly Lys Leu Pro Ala Thr  
1 5 10 15

Gln Leu Arg Arg His Ile Asp Leu Leu  
                   20                  25

<210> 55

<211> 25

<212> PRT

<213> Hepatitis C virus

<400> 55

Gly Gly Thr Pro Thr Leu Ala Ala Arg Asp Ala Ser Val Pro Thr Thr  
   1                  5                  10                  15

Thr Ile Arg Arg His Val Asp Leu Leu  
                   20                  25

<210> 56

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 56

Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Gln Val Arg Asn  
   1                  5                  10                  15

Ser Thr Gly Leu  
                   20

<210> 57

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 57

Gln Val Arg Asn Ser Thr Gly Leu Tyr His Val Thr Asn Asp Cys Pro  
   1                  5                  10                  15

Asn Ser Ser Ile  
                   20

<210> 58

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 58

Asn Asp Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala His Asp Ala Ile  
   1                  5                  10                  15

Leu His Thr Pro



20

&lt;210&gt; 59

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 59

Ser	Asn	Ser	Ser	Ile	Val	Tyr	Glu	Ala	Ala	Asp	Met	Ile	Met	His	Thr
1				5					10					15	

Pro	Gly	Cys	Val
			20

&lt;210&gt; 60

&lt;211&gt; 19

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 60

His	Asp	Ala	Ile	Leu	His	Thr	Pro	Gly	Val	Pro	Cys	Val	Arg	Glu	Gly
1				5					10					15	

Asn	Val	Ser
-----	-----	-----

&lt;210&gt; 61

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 61

Cys	Val	Arg	Glu	Gly	Asn	Val	Ser	Arg	Cys	Trp	Val	Ala	Met	Thr	Pro
1				5					10					15	

Thr	Val	Ala	Thr
			20

&lt;210&gt; 62

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 62

Ala	Met	Thr	Pro	Thr	Val	Ala	Thr	Arg	Asp	Gly	Lys	Leu	Pro	Ala	Thr
1				5					10					15	

Gln	Leu	Arg	Arg
-----	-----	-----	-----

20

&lt;210&gt; 63

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 63

Leu Pro Ala Thr Gln Leu Arg Arg His Ile Asp Leu Leu Val Gly Ser  
 1 5 10 15

Ala Thr Leu Cys  
 20

&lt;210&gt; 64

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 64

Leu Val Gly Ser Ala Thr Leu Cys Ser Ala Leu Tyr Val Gly Asp Leu  
 1 5 10 15

Cys Gly Ser Val  
 20

&lt;210&gt; 65

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 65

Gln Leu Phe Thr Phe Ser Pro Arg Arg His Trp Thr Thr Gln Gly Cys  
 1 5 10 15

Asn Cys Ser Ile  
 20

&lt;210&gt; 66

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 66

Thr Gln Gly Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His  
 1 5 10 15

Arg Met Ala Trp

20

&lt;210&gt; 67

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 67

Ile	Thr	Gly	His	Arg	Met	Ala	Trp	Asp	Met	Met	Met	Asn	Trp	Ser	Pro
1				5					10					15	

Thr	Ala	Ala	Leu
			20

&lt;210&gt; 68

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 68

Asn	Trp	Ser	Pro	Thr	Ala	Ala	Leu	Val	Met	Ala	Gln	Leu	Leu	Arg	Ile
1				5					10					15	

Pro	Gln	Ala	Ile
			20

&lt;210&gt; 69

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 69

Leu	Leu	Arg	Ile	Pro	Gln	Ala	Ile	Leu	Asp	Met	Ile	Ala	Gly	Ala	His
1				5					10					15	

Trp	Gly	Val	Leu
			20

&lt;210&gt; 70

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 70

Ala	Gly	Ala	His	Trp	Gly	Val	Leu	Ala	Gly	Ile	Ala	Tyr	Phe	Ser	Met
1				5					10					15	

Val	Gly	Asn	Met
-----	-----	-----	-----

20

&lt;210&gt; 71

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 71

Val	Val	Leu	Leu	Leu	Phe	Ala	Gly	Val	Asp	Ala	Glu	Thr	Ile	Val	Ser
1				5					10					15	
Gly Gly Gln Ala															
20															

&lt;210&gt; 72

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 72

Ser	Gly	Leu	Val	Ser	Leu	Phe	Thr	Pro	Gly	Ala	Lys	Gln	Asn	Ile	Gln
1				5					10					15	
Leu Ile Asn Thr															
20															

&lt;210&gt; 73

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 73

Gln	Asn	Ile	Gln	Leu	Ile	Asn	Thr	Asn	Gly	Gln	Trp	His	Ile	Asn	Ser
1				5					10					15	
Thr Ala Leu Asn															
20															

&lt;210&gt; 74

&lt;211&gt; 21

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 74

Leu	Asn	Cys	Asn	Glu	Ser	Leu	Asn	Thr	Gly	Trp	Trp	Leu	Ala	Gly	Leu
1				5					10					15	

Ile Tyr Gln His Lys  
20

<210> 75

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 75

Ala Gly Leu Ile Tyr Gln His Lys Phe Asn Ser Ser Gly Cys Pro Glu  
1 5 10 15

Arg Leu Ala Ser  
20

<210> 76

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 76

Gly Cys Pro Glu Arg Leu Ala Ser Cys Arg Pro Leu Thr Asp Phe Asp  
1 5 10 15

Gln Gly Trp Gly  
20

<210> 77

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 77

Thr Asp Phe Asp Gln Gly Trp Gly Pro Ile Ser Tyr Ala Asn Gly Ser  
1 5 10 15

Gly Pro Asp Gln  
20

<210> 78

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 78

Ala Asn Gly Ser Gly Pro Asp Gln Arg Pro Tyr Cys Trp His Tyr Pro  
1 5 10 15

Pro Lys Pro Cys  
20

<210> 79

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 79

Trp His Tyr Pro Pro Lys Pro Cys Gly Ile Val Pro Ala Lys Ser Val  
1 5 10 15

Cys Gly Pro Val  
20

<210> 80

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 80

Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val  
1 5 10 15

Val Val Gly Thr  
20

<210> 81

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 81

Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr  
1 5 10 15

Tyr Ser Trp Gly  
20

<210> 82

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 82

Gly Ala Pro Thr Tyr Ser Trp Gly Glu Asn Asp Thr Asp Val Phe Val  
1 5 10 15

Leu Asn Asn Thr  
20

<210> 83

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 83

Gly Asn Trp Phe Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys  
1 5 10 15

Val Cys Gly Ala  
20

<210> 84

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 84

Gly Phe Thr Lys Val Cys Gly Ala Pro Pro Val Cys Ile Gly Gly Ala  
1 5 10 15

Gly Asn Asn Thr  
20

<210> 85

<211> 19

<212> PRT

<213> Hepatitis C virus

<400> 85

Ile Gly Gly Ala Gly Asn Asn Thr Leu His Cys Pro Thr Asp Cys Arg  
1 5 10 15

Lys His Pro

<210> 86

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 86

Thr Asp Cys Phe Arg Lys His Pro Asp Ala Thr Tyr Ser Arg Cys Gly  
1 5 10 15

Ser Gly Pro Trp  
20

<210> 87

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 87

Ser Arg Cys Gly Ser Gly Pro Trp Ile Thr Pro Arg Cys Leu Val Asp  
1 5 10 15

Tyr Pro Tyr Arg  
20

<210> 88

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 88

Cys Leu Val Asp Tyr Pro Tyr Arg Leu Trp His Tyr Pro Cys Thr Ile  
1 5 10 15

Asn Tyr Thr Ile  
20

<210> 89

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 89

Pro Cys Thr Ile Asn Tyr Thr Ile Phe Lys Ile Arg Met Tyr Val Gly  
1 5 10 15

Gly Val Glu His  
20

<210> 90

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 90

Met Tyr Val Gly Gly Val Glu His Arg Leu Glu Ala Ala Cys Asn Trp  
1 5 10 15



Thr Pro Gly Glu  
20

<210> 91

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 91

Ala Cys Asn Trp Thr Pro Gly Glu Arg Cys Asp Leu Glu Asp Arg Asp  
1 5 10 15

Arg Ser Glu Leu  
20

<210> 92

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 92

Glu Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu Leu Leu Thr Thr Thr  
1 5 10 15

Gln Trp Gln Val  
20

<210> 93

<211> 9

<212> PRT

<213> Hepatitis C virus

<400> 93

Tyr Gln Val Arg Asn Ser Thr Gly Leu  
1 5

<210> 94

<211> 29

<212> DNA

<213> Hepatitis C virus

<220>

<221> misc\_feature

<223>/note="antisense"

<400> 94

acgtccgtac gttcgaatta attaatcga

<210> 95

<211> 60

<212> DNA

<213> Hepatitis C virus

<220>

<221> misc\_feature

<223>/note="antisense"

<400> 95

cctccggacg tgcactagct cccgtctgtg gtagtggtgg tagtgattat caattaattg 60

<210> 96

<211> 19

<212> DNA

<213> Hepatitis C virus

<400> 96

gtttaaccac tgcattgatg 19

<210> 97

<211> 20

<212> DNA

<213> Hepatitis C virus

<400> 97

gtcccatcga gtgcggctac 20

<210> 98

<211> 45

<212> DNA

<213> Hepatitis C virus

<400> 98

cgtgacatgg tacattccgg acacttggcg cacttcataa gcgga 45

<210> 99

<211> 42

<212> DNA

<213> Hepatitis C virus

<400> 99

tgccatcatc acaatggagc tctgggacga gtcgttcgtg ac 42

<210> 100

<211> 42

<212> DNA

<213> Hepatitis C virus

<400> 100

taccacgacg cgggagctct gttgctcccg aacgcagggc ac

42

<210> 101

<211> 42

<212> DNA

<213> Hepatitis C virus

<400> 101

tgtcgtggtg gggacggagg cctgcctagc tgcgagcgtg gg

42

<210> 102

<211> 48

<212> DNA

<213> Hepatitis C virus

<400> 102

cggtatgtgg cccgggtaga ttgagcactg gcagtcctgc accgtctc

48

<210> 103

<211> 42

<212> DNA

<213> Hepatitis C virus

<400> 103

cagggccgtt ctaggcctcc actgcatcat catatcccaa gc

42

<210> 104

<211> 26

<212> DNA

<213> Hepatitis C virus

<400> 104

ccggaatgta ccatgtcacg aacgac

26

<210> 105

<211> 24

<212> DNA

<213> Hepatitis C virus

<400> 105

gctccattgt gtatgaggca gcgg

24

<210> 106

<211> 23

<212> DNA

<213> Hepatitis C virus

<400> 106

gagctcccgc tgctgggtag cgc

23

<210> 107

<211> 25

<212> DNA

<213> Hepatitis C virus

<400> 107

cctccgtccc caccacgaca atacg

25

<210> 108

<211> 27

<212> DNA

<213> Hepatitis C virus

<400> 108

ctacccgggc cacataacgg gtcaccg

27

<210> 109

<211> 24

<212> DNA

<213> Hepatitis C virus

<400> 109

ggaggcctac aacggccctg gtgg

24

<210> 110

<211> 22

<212> DNA

<213> Hepatitis C virus

<400> 110

ttctatcgat taaatagaat tc

22

<210> 111

<211> 23

<212> DNA

<213> Hepatitis C virus

<400> 111

gccatacgct cacagccgat ccc

23

<210> 112

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 112

Tyr Glu Val Arg Asn Val Ser Gly Ile Tyr His Val Thr Asn Asp Cys  
1 5 10 15

Ser Asn Ser Ser  
20

<210> 113

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 113

Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala Ala Asp  
1 5 10 15

Met Ile Met His Thr  
20

<210> 114

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 114

Ala Ala Asp Met Ile Met His Thr Pro Gly Cys Val Pro Cys Val  
1 5 10 15

Arg Glu Asn Asn Ser  
20

<210> 115

<211> 20

<212> PRT

<213> Hepatitis C virus

&lt;400&gt; 115

Pro Cys Val Arg Glu Asn Asn Ser Ser Arg Cys Trp Val Ala Leu  
 1 5 10 15

Thr Pro Thr Leu Ala  
 20

&lt;210&gt; 116

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 116

Val Ala Leu Thr Pro Thr Leu Ala Ala Arg Asn Ala Ser Val Pro  
 1 5 10 15

Thr Thr Thr Ile Arg  
 20

&lt;210&gt; 117

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 117

Ser Val Pro Thr Thr Thr Ile Arg Arg His Val Asp Leu Leu Val  
 1 5 10 15

Gly Ala Ala Ala Phe  
 20

&lt;210&gt; 118

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 118

Leu Leu Val Gly Ala Ala Ala Phe Cys Ser Ala Met Tyr Val Gly  
 1 5 10 15

Asp Leu Cys Gly Ser  
 20

&lt;210&gt; 119

&lt;211&gt; 20

&lt;212&gt; PRT

&lt;213&gt; Hepatitis C virus

&lt;400&gt; 119

Tyr Val Gly Asp Leu Cys Gly Ser Val Phe Leu Val Ser Gln Leu  
 1 5 10 15

Phe Thr Ile Ser Pro  
20

<210> 120

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 120

Ser Gln Leu Phe Thr Ile Ser Pro Arg Arg His Glu Thr Val Gln  
1 5 10 15

Asp Cys Asn Cys Ser  
20

<210> 121

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 121

Thr Val Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr  
1 5 10 15

Gly His Arg Met Ala  
20

<210> 122

<211> 20

<212> PRT

<213> Hepatitis C virus

<400> 122

His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp  
1 5 10 15  
Ser Pro Thr Thr Ala  
20